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ABSTRACT

A parent training model utilizing rural Utah (Box Elder County) parents whose children had been identified by their teachers as among the lowest three in their classes in reading or mathematics performance examined the academic performance of 150 students in grades 2-6 derived from 9 elementary schools (5 schools in the treatment group and 4 in the control group). Utilizing self-contained paper and pencil instructional packages (revised via formative evaluation procedures), the program included pre- and post-testing with the Wide Range Achievement Test (a standardized measure; and the Parent Teaching Package Test (a criterion measure assessing 11 areas: sound symbols, blending sounds, word recognition; vocabulary building; number skills; addition; subtraction; multiplication; division; carrying and borrowing; and time telling). An analysis of covariance was computed using the pre-test means as the covariate for the nine subtests in order to compare the adjusted post-test means of the experimental and control groups. None of the nine test results reached the .05 level of significance. Analysis of monitoring procedures (teacher based) indicated that the treatment was not fully implemented. Data clearly indicated that the total treatment system was not effective and that future efforts should include a different administrative procedure. (Author/JC)

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FINAL REPORT

EFFECTIVENESS OF PARENTS AS A TREATMENT RESOURCE IN RURAL AREAS

Grant NEG-00-3-0156

Submitted by:

Alan M. Hofmeister, Project Director
Norman F. Erken, Associate Director
Utah State University
Exceptional Child Center
Logan, Utah 84322

Phone: (801)-752-4100, Ext. 7753

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ABSTRACT

This study describes the development and evaluation of a parent training model. The model utilized parents in rural areas as the major treatment resource for assisting in remediating selected academic problems of their school age children who had been identified as having learning problems. The parent training mode was self-contained paper and pencil instructional packages.

The instructional packages went through an average of seven revisions as a result of formative evaluation procedures, administrative manuals and associated placement tests and procedures were also developed, field-tested, and revised prior to the summative evaluation.

In the summative evaluation forty (40) teachers selected a total of 150 students, whom the teachers identified as the lowest three in reading and/or arithmetic performance in their classes. The students were second through sixth graders drawn from nine rural elementary schools. Of the nine schools, five were randomly assigned to the treatment group and four to the control group.

The students were pretested by trained independent testers with a standardized measure, the Wide Range Achievement Test (WRAT), and a criterion measure, the Parent Teaching Package Test (PTPT). The teachers then readministered the PTPT to determine the instructional package that was appropriate for the student's skills. The PTPT assessed 11 areas. These were sound symbols, blending sounds, word recognition, vocabulary building, number skills, addition, subtraction, multiplication, division, carrying and borrowing, and time telling.

An analysis of covariance was computed using the pretest means as the covariate for the nine subtests in order to compare the adjusted posttest means of the experimental and control groups. None of the nine test results reached the .05 level of significance.

Procedures were included in the design to monitor the implementation of the treatment. An analysis of this data indicated that the treatment was not fully implemented. One important aspect of the treatment, the teacher telephone follow-up, was conducted in less than 30 percent of the required instances.

The data clearly indicate that the total treatment system was not effective and future efforts should use a different administrative procedure. This study was dependent upon the interest of the classroom teacher for implementation. Future research should use different channels to the home or investigate different ways to elicit the involvement of the classroom teacher. The actual value of the packages themselves is still unproven. This study did generate a related study in which a different set of instructional packages were used with parent of severely handicapped children in rural areas. In this related study, the classroom teacher was by-passed and statistically significant changes in pupil behavior were observed in favor of the experimental group along with parent attitude ratings.

INTRODUCTION

Rural schools have historically faced a number of problems concerning the development and maintenance of programs for students with learning difficulties. Two major problems have been distances over which students must be transported to reach centralized facilities, and a low tax base that has not allowed special programs or specially trained personnel to provide needed services for students who exhibit learning problems in the regular classroom.

In contrast to urban population centers, rural areas have not had centralized facilities easily accessible to parents of children with learning problems (Edington, 1972). According to McClurkin (1970), facilities and personnel have been out of reach for many rural families because of the time and distances required for travel to such centers.

The second hindrance inherent in rural education has been fiscal. Henderson and Gomez (1975), in a speech to an annual meeting of the Rural Sociological Society, stated that the lower tax base of the rural community places constraints on the type of programs and personnel the small school systems can afford. Some of the services that would be beneficial for rural families with children who are academically deficient are special home tutoring, training centers for parents, and specialized facilities and classrooms. Bohrson and Gann (1963) pointed out that in sparsely populated regions the cost of such programs has been prohibitive. Introduction of new programs into rural areas has been slow in coming, and Farber and Lewis (1975) have contended that this is a consequence of the fiscal limitations of rural schools. Tamblyn (1971) has pointed to these fiscal limitations as the major factor that makes the difference between what he considers the higher caliber of urban education when compared to that or rural areas.

Because of the problems unique to rural areas, special resources that have not traditionally been used may be necessary. Among those resources are parents, older family members, siblings, and other adults at home. An increasing amount of research has indicated that with training and the proper materials, individuals other than trained professionals can effectively teach children. It has been shown that parents can be trained to modify the social behavior of their children (Colle, Terzvola & Colle, 1975; Morrey, 1970; Patterson & Cobb, 1972). Tannenbaum (1968), Meyers (1971), Keele and Harrison (1972), and Niedermeyer (1970) reported that, based upon their research findings, parents have been effectively trained to teach basic reading skills to their children. Parents have also been trained by self-instructional materials to teach their children basic arithmetic computation facts (Reavis, 1972; Young, 1974).

Adkins (1975) and Bell (1975) have both taken the position that not only do parents have the right to actively participate in their children's academic education, but that it is the responsibility of the schools to prepare the parents to do so. They further stated that this preparation not be limited to parents, but include older siblings, aunts, uncles, grandparents, or even neighbors.

The research reported in this paper is concerned with the validation of a self-contained instructional package system designed to train parents to teach their children basic reading and arithmetic skills. Providing local teachers and parents with such a self-contained training system would allow the parent to function independently of a centralized facility, and would be more in keeping with the fiscal and manpower limitations of a number of rural school districts. A training model utilizing parents, family members, or close friends, if effective in making the necessary behavior changes, should meet some of the needs of the child, his family, and school.

Statement of the Problem

The evidence suggests that self-contained instructional programs can be used to effectively train parents to teach their children selected academic skills. The problem is that there is a lack of research evidence bearing directly upon effectiveness of a self-contained instructional system designed to train parents to teach their children basic reading and arithmetic skills.

Purpose

It was the purpose of this research to develop and assess the intervention effects of a model using parents as the major treatment resource for assisting in remediating selected problems of rural school age pupils with learning difficulties. The research was concerned with the following questions:

1. Can parents of elementary school age children, using mediated packages, teach basic reading skills (sound symbol, sound blending, word recognition, and vocabulary building) to increase the performance of their children as measured by standardized and criterion-referenced tests?
2. Can parents of elementary school age children, using mediated packages, teach basic math facts (time telling, addition, subtraction, carrying and borrowing, multiplication, and division) to increase the performance of their children as measured by standardized and criterion-referenced tests?
3. What would be the nature and extent of attrition of the participants?
4. What would be the attitudes of administrators and teachers toward the Parent Teaching Package system?

In answering these questions, research was limited to the validation of a model employing parents trained with mediated instructional packages which were developed to train parents to teach their children selected basic reading and arithmetic skills.

Hypotheses

The following hypotheses were formulated to direct the statistical analysis related to questions one and two.

1. On the combined reading and math scores on the Parent Teaching Package Test (PTPT), there would be no statistically significant difference between the treatment and control groups on the adjusted posttest means.
2. On the combined reading and arithmetic scores on the Wide Range Achievement Test (WRAT), there would be no statistically significant difference between the treatment and control groups on the adjusted posttest means.
3. On the arithmetic scores on the PTPT, there would be no statistically significant difference between the arithmetic treatment and control groups on the adjusted posttest means.
4. On the arithmetic scores on the WRAT, there would be no statistically significant difference between the reading treatment and control groups on the adjusted posttest means.
5. On the reading scores on the PTPT, there would be no statistically significant difference between the reading treatment and control groups on the adjusted posttest means.
6. On the reading scores on the WRAT there would be no statistically significant difference between the reading treatment and control groups on the

adjusted posttest means.

7. On the spelling scores on the WRAT, there would be no statistically significant difference between the reading treatment and control groups on the adjusted posttest means.

Definition of Terms

For purposes of this study, the following terms have been defined.

Handicapped child/child with learning problems included children selected by the classroom teacher who, in the opinion of the teacher, needed help beyond the scope of the program presently in existence.

Instructional package is a self-contained systematized method of delivering content and process to learners (Kapfer & Kapfer, 1972).

Nonprofessionals/paraprofessionals are individuals assigned to training, who have not been certified by a state educational certification agency to teach.

Paper and pencil package is an instructional package requiring of the student and teacher no more than a pencil and piece of paper for its use.

Project refers to the NIE funded research project "The Effectiveness of Parents as an Educational Treatment Resource in Rural Areas."

Research staff refers to the professional staff responsible for the project, all of whom had earned masters degrees in special education.

Rural community refers to a geographic area having a population density of less than 10 people per square mile.

REVIEW OF RELATED LITERATURE

The review of literature examines studies related to the validation of a selected teaching system. The system was designed to train parents of students who were low performers in basic reading and arithmetic skills. The training provided to the parents used only mediated instructional packages. Literature was reviewed to determine the state of the art concerning: (1) parents as teachers, (2) modes of training parents to teach their children, (3) instructional package development, (4) training parents only through instructional packages, and (5) curriculum rationale.

Parents as Teachers

An increased emphasis toward greater parent involvement in public schools occurred in the middle 1960's. Before that time, the general opinion was that the home should be run by parents, while school operations should be left to the professional educator. More recently both laymen and educators have advocated stronger and more extensive parent involvement in public education (Larrick, 1975a; 1975b; Martin, Kennedy, & Kersey, 1975; O'Connell, 1975; Pikulski, 1974). The idea that parents should be encouraged to keep "hands off" their children while they are in school ignores the fact that parents of handicapped children have the capability of helping their children achieve mastery of essential skills despite the children's disabilities (McWhirter, 1976).

New approaches to parent involvement recommend more than participation in parent-teacher conferences and organizations such as Parent Teacher Associations (PTA). Enzer (1975) reported several cases in which parents had been employed as aides in the classroom and playground. In most of these situations, children improved socially and academically while their parents were participating.

Frequently schools are faced with a hostile public. A diverse community requires schools to meet a wide variety of educational needs. A number of studies showed that parents are less likely to repudiate and more likely to support schools when they are given the opportunity to become directly involved (Cooke & Apolloni, 1975; Farber & Lewis, 1975; Feldman, Byalick & Rosedale, 1975). Karnes and Zehrback (1975a) and Novik (1975) suggested that the best way for parents to become well informed is for them to participate in the schools. Adkins (1975) and Mullins (1975) agreed, and added that a well informed parent generally produces a student with a positive attitude about education and related activities.

Parents as teachers is neither a new nor a unique phenomenon. For the first years of a child's life, the family is his major educational institution. Rice (1975) stated that the home and parents comprise a major portion of the environment through which the child is first taught. Most parents teach intuitively or they teach as they were taught. These early experiences lay the foundation for the child's initial school performance. In most cases, parents are not provided with training either in parenting skills or in the skills of more formal training. Massey and Myers (1975) have determined, however, that with some form of systematic training, parents were able to carry out many of the tasks that a teacher normally performs.

The purpose of a study by Woods, Barnard and Teselle (1974) was to assess the influence of parent participation on their child's academic achievement. A random stratified sample was selected from 14 kindergarten classrooms in five schools--40 students whose parents did. The selected parents received instruction twice a week in ways to work with their children, making reading games and teaching in the kindergarten classroom. They worked half their time with the students whose parents did not participate, and half their time with their own children. The Murphy-Durrell Reading Readiness Analysis Test subtests on letter names and phonemes were administered as pre- and posttest measures. Test results showed that all of the children mastered the beginning skill of letter naming, regardless of whether or not their parent attended the Parent Involvement Program. However, only those students whose parents did participate learned the more difficult task of reading phonemes. The researchers concluded that involvement of parents as teachers could be a means of reducing reading failure in the early grades, and should be researched further.

Modes of Training Parents to Teach Their Children

This section of the literature review reports the findings from the research pertaining to the most commonly used parent training modes. The modes discussed were: (1) small group training, (2) training centers, (3) paraprofessional trainers, (4) printed text materials, and (5) training through combined modes.

Small Group Training

A number of researchers have reported the effectiveness of using small group sessions for training parents to teach their handicapped children social and self-help skills (Doty, 1972; Warfield, 1975). Clement (1971) reported on therapy sessions designed to train parents to use behavior modification techniques to alter their children's social behaviors. The training was carried out in small groups at the clinician's office. The parents were first provided with literature relevant to their child's behavior problems. The clinician then modeled the appropriate parent behavior, following which the parents role played the behavior that had been demonstrated. Clement reported the results of three case studies in which this mode of parent training was used effectively. No data were recorded for the three cases, and only parent reports were used for recording progress. The first case was an eight year old boy whose parents were able to eliminate his sleep walking. The second was a nine-and-a-half year old boy who exhibited nervous tics. Within five weeks after the parents began intervention, the boy was completely free of sleepwalking. Finally, Clement reported on a girl who was exhibiting behavior clinically referred to as Anorexia Nervosa. She suffered from excessive depression, crying spells, and sporadic eating binges. Although he did not provide the time frame in which it was accomplished, Clement reported that the parents were able to eliminate the girl's inappropriate behaviors.

Morrey (1970) also investigated the effect of training parents in small group sessions. The parents were trained to use a precision teaching approach (Kunzelmann, 1970) in an effort to increase their ability to manage their children at home. Morrey provided the parents with training for 10 weeks. In the group training sessions, the parents were taught to pinpoint, count, and chart behavior. After observing the behavior, they selected and introduced an event which could have an effect on the behavior. If the behavior failed to change in the desired direction, the parent was directed to select a new event. Once the desired change had occurred, the parent removed the contingencies and continued to record the occurrence of the pinpointed behavior.

Although only six of the original 18 sets of parents continued through the 10 week program, 83% of the participating parents attempted one or more projects. Of 16 projects attempted by five sets of parents, the effects of parental intervention were found to be significant beyond the .05 level. Morrey concluded that parents could significantly change the behavior of their child through the application of certain systematic procedures.

Through information gathered with a questionnaire, Philage, Kuna and Becerril (1975) prepared a four-phase, 44 week group training program for parents of children who had been assessed as having learning disabilities. Phase one included a four week training program for the parents. During phase two the parents worked with small groups of children to learn the remediation tasks, behavior modification techniques, and "social relating skills" (p.24). Phase three ran for 16 weeks during which time the parents took over the remediation programs under the guidance of the staff. In phase four, the parents functioned more independently of the staff than in the previous phases. Although no child performance data were gathered, feedback from the 14 sets of parents and their children was very positive in terms of the children's improvement. The families also consistently reported improvements in family relationships. Investigators agreed that parent meetings were an effective mode of training parents to teach their children academic skills (Hamm & Lyman, 1973; Koven & LeBow, 1973; Meyers, 1971; Price, 1975).

Koven and LeBow (1973) sought to determine whether parents could be trained to alter current reinforcement practices and implement new ones. Their objective was to eliminate inappropriate social behaviors and increase the frequency of selected academic behaviors. In this case, the desired behaviors were reading words correctly from a list and spelling more accurately. The inappropriate behaviors were not specified by the researchers. Three second grade children were selected, all of whom performed below their appropriate grade level, though how far below was not specified by the researcher. Training was provided for the mothers of the three children in a group setting for the first three sessions. Unlike Hirst (1973), who provided no systematic monitoring, Koven and LeBow held half hour sessions in the individual homes after the initial training period. These sessions continued until each mother demonstrated that she could administer the program correctly for four days. Observations were then made at least once a week. A multiple baseline technique was employed. During the baseline period, each mother listened to her child read two selections and spell two lists of words. During that time, the mothers provided no feedback to their children. During the second period, the mothers systematically administered reinforcement to the child for having read one selection correctly and for having spelled one list accurately. No additional reinforcement was provided the child if he read or spelled the second selections correctly. In the third period, the mother not only reinforced correct reading of the first set of materials, but she also reinforced appropriate performance with the second set.

A comparison of baseline data and posttest scores using a *t*-test for correlated means yielded a significance level of .001 for all three students in both reading and spelling. A two month follow-up revealed that two of the students maintained a good proportion of their gains, and the third had maintained some gains, but not to the extent of the other two. The researchers concluded from this study that small group training with follow-up was an effective mode of parent training.

Some parent training programs have arisen from requests by the parents rather than initiation by the school system. One such program was reported by Hamm et al. (1973). Twenty-eight (28) families who indicated an interest in learning behavior management skills were included in a training program involving four groups from three elementary schools. The sessions' length lasted from seven to 12 weeks, depending upon the group. Two groups elected to run for seven weeks, one for 10, and the other for 12. Behavior modification techniques were taught, and each set of parents selected a project. Projects that the parents attempted included: 51 projects dealing with responsibility, four with self modifications, three with emotional behavior problems, 13 with interpersonal/family relations, and six with school related problems. Each group met one night a week, and the meetings lasted approximately one and a half to two hours. As with Morrey (1970), pinpointing, recording, and consequating behavior were the three basic skills taught. The group leaders avoided giving prescriptions to the parents, as the parents formulated the problem and solution. A leader would require the parents to prepare a tentative program and then reinforce the parents whose programs appeared to meet the specified requirements.

The results were reported individually, but of those parents who started the program, 66% completed the program, and all of those who completed were successful at attaining their criteria on at least one project. Based upon the responses to a questionnaire that was sent to the dropouts, nearly all were unhappy with the program and felt they had gained nothing. Contrary to that opinion, those who completed the program responded similarly to the parents in a study by Miller (1975) in which the parents also met in groups and were trained to teach reading to their children.

In many instances, parents are unable to attend meetings during the day because of obligations they have with children at home. To reduce this problem, Niedermeyer (1970) reported a study in which free babysitting and movies for these children were provided. Meetings were held in late afternoon, as well as evening, and parents were asked to return a form to the principal signifying whether they would participate. Ninty-one (91) parents, including 20 fathers, turned out.. This represented 83% of the 89 kindergarten pupils' parents. The objective of the 90 minute parent training sessions was to teach the parents how to conduct the practice exercise sessions with the child at home. Parents were also provided with written directions on how to run the sessions. The system was designed to give the child class-related practice at home. Although no standardized measure was used, a 50-item criterion-referenced test was developed by randomly selecting test items taught in the Parent-Assisted Learning Program. This test was used to pre- and posttest the experimental group that received treatment with the Parent-Assisted Learning Program, and the control group that received no unique treatment. An analysis of covariance was run using the pretest as the covariate. An F value of 39.61 was obtained, which was sufficient to reach the .01 level of significance in favor of the students whose parents worked with them on the Parent-Assisted Learning Program. The researchers attributed these results to certain features of the program; namely,

> Instruction based on objectives, programmed materials, short but specific parent training procedures for rewarding and motivating children, and a classroom program that generated positive parent attitudes (p. 444).

The assumption that the home could give help and support to the child as he undertook the major task of learning to read was the basis of the research by Hirst (1973). A total of 96 second grade students were selected from six classrooms. The sample included 48 boys and 48 girls. A problem that must be noted is that the control and experimental students were drawn from the same classrooms which may have led to experimental contamination. The average intelligence quotient of the sample as measured by the Slosson Intelligence Test was 100, and the average grade level reading achievement and vocabulary scores were both 2.3, as measured by the Gates MacGinitie Reading Tests, Primary B. A meeting was held at the beginning of the investigation, at which time the parents were given instructions on how to help their child practice reading materials that would be sent home. Each day, the child would take his reading text home and practice reading that day's lesson to his parents. The parent was to "encourage" the child to read. After the research had been underway eight weeks, a second meeting was held. The purpose of this meeting was to answer questions and reinforce the parents for the work they were doing. This was the extent of monitoring that was carried out in the research. A t-test was used to determine the homogeneity of the control and experimental groups on the pretest. Upon finding no statistically significant differences, the researcher used an analysis of variance to analyze the results of the experiment. No statistical significance was found. The researchers concluded that a monitoring system was needed to maintain more continuous contact with the parents. In spite of the results, Hirst concluded also that with revisions, the program offered a viable approach of using the parents in the learning-to-read process.

In summary, most of the literature that has been reported has been supportive of the use of small group training sessions for training parents to teach their children basic academic and social skills.

Training Centers

Parent training programs have been developed and operated in training centers which have been designed solely for the training of parents. The rationale for providing such training centers was expressed by McConnell (1974) and Fudala, England, and Gunoung (1972). For maximum training effectiveness, all of the available training resources should be brought to bear without losing the natural resources in the child's home.

Bellamy, Dickson, Chamberlain, and Steinbock (1975) found that working with a parent on an individual basis in a training center was an effective means of training a mother to teach her Down's syndrome infant selected skills. The skills included visual attending, a pre-crawling skill, and lifting a cup.

McConnell (1974) discussed a program for intensive training of parents of hearing impaired preschool children. The training took place in a home designed to provide the parent and child with a natural environment, rather than an artificial clinical setting. The parent would observe while a trained clinician worked daily with the child, and then the parent would repeat the procedure that the clinician had modeled. The child and parent would then return home and practice that day's new activities. Liff (1973) cited the results of a study which used this training model. Within the program, six hearing impaired second grade students fitted with hearing aids before age three scored nearly an equivalent mean in reading on the Metropolitan Achievement Test to 53 normal hearing second graders. The researcher concluded that provided with training in such a training center, parents could aid their hearing impaired child to achieve a more normal educational experience.

In another training center program, Fudala, England, and Ganoung (1973) hypothesized that if parents would attend their child's work sessions, the child's speech would not only improve, but the results would more likely be permanent. Ninety-two (92) elementary school children were randomly assigned to either Group One, in which parents were not asked to attend speech sessions, or Group Two, in which half the parents were asked to attend weekly and the other half bi-monthly. During the sessions in which the parents attended, the therapist taught and encouraged the parents to work with their child. Scores for articulation, as measured by the Arizona Articulation Proficiency Scale, were significantly higher for those students whose parents attended the training sessions than for those whose parents did not. These reports supported the original hypothesis. The researchers concluded that if parents of children who exhibit nonorganic articulatory disorders will observe the clinician working with their child and then carry out the same procedures at home, their child will improve more than if the parents did not use this system.

Lincoln, Briscoe, and Williams (1975) reported on a six week study of math student performance in an urban school. Parents of 19 fourth grade children were contacted by mail, and asked if they would participate with their children in one-hour sessions at school two nights a week for six weeks. Eleven (11) of the parents attended the first meeting. The students were pretested with a 34 item test that one of the authors had prepared with sample problems from selected texts. There was no report concerning the reliability or validity of the measure. All sessions were held at school, and the sessions consisted of one of the authors presenting a new concept or process and the students doing seatwork or boardwork. The parents assisted only if the student "got stuck". A pretest/posttest design was used, and a t-test for related samples was performed. Mean scores of the pretest and the posttest were 17.5 and 22.4 respectively. A mean gain of 4.9 on the criterion test yielded a significance of .01. In spite of the limitations of testing and a lack of control group, the researchers concluded that parents were helpful in improving their children's math skills when working in a controlled setting. Criscuolo (1974), Murray (1973), and Radin (1972) conducted studies none of which reported results. However, each concluded that special centers for training parents to teach their children was a viable concept.

Paraprofessional Trainers

In an attempt to reduce the cost of parent training, as well as increase the amount of monitoring that is provided to parents while they are teaching their children, paraprofessionals have been used to work with the parents (Guinagh, Olmsted & Gordon, 1975; Henderson & Swanson, 1973; Tannenbaum, 1968). Results of the research carried out by Popham (1970) indicated that parents trained by paraprofessionals can be as effective as professional teachers provided the parents have been given objectives stated in terms of target behaviors.

Henderson and Swanson (1973) reported a study in which paraprofessionals were trained to teach 30 Papago mothers to teach their preschool age children to ask causal questions. Based upon the results, the researchers concluded that use of paraprofessionals as parent trainers was effective and should be researched further.

In one case, trained paraprofessionals were used to work in ghetto homes that were nearly inaccessible to the professional (Tannebaum, 1968). In a pilot study in 1965, trained volunteers went into the homes of first, third, and sixth graders, as well as junior high school pupils. Prior to these visits, the volunteers would meet with a professional reading staff. In some cases, the volunteers would train the parents to work directly with the child. In other cases, the volunteer would work directly with the child. The results of the pilot study were inconclusive. Thus, in 1967, the staff of the Supplementary Teaching Assistance in Reading (STAR) project randomly assigned 490 students to STAR, 96 to a reading clinic, and 79 to a nontreatment control group. The students who were assigned to the reading clinic received help from a reading specialist for 45 minutes a day. Twenty-eight (28) aides were selected from a pool of applicants. The aides were paid $2.00 per hour for their services. The treatment ran for five months; it included 20 weekly visits, each lasting one hour. The program content consisted of 21 lessons designed to be a series of highly structured "how-to-do-it" exercises in reading readiness. These lessons were designed so that a non-professional could teach parents to use them in teaching their own child. The content included (1) practice in code breaking, (2) formal language experience, and (3) visual-perceptual exercises.

Pre- and posttest data were gathered with the Frostig Developmental Tests of Visual Perception and the Metropolitan Reading Readiness Test. A one-way analysis of variance across the four groups reached the .025 level for the scores on the Metropolitan Matching subtest. Levels of significance in favor of the STARs of .05 and .10 were reached on the Metropolitan

Word Meaning Test and the Frostig Developmental Tests of Visual Perception, respectively.

Tannenbaum concluded that while the results were not definitive, the STAR training did appear to be helpful in training parents to teach their children.

Guinagh et al. (1975) investigated the effectiveness and practicality of a home-centered preschool intervention program. The program was staffed by paraprofessional educators who were themselves members of the population served. Subjects for the project were children chosen at birth by the obstetrics staff of the Teaching Hospital of the J. Hillis Miller Health Center for the University of Florida. The children were selected on the basis that they were healthy, with no abnormalities, and were classified "indigent." For purposes of studying longitudinal effects of later treatment, additional children were selected for whom less rigorour selection criteria were established. The children were assigned to one of eight groups: (1) received treatment all three years, (2) received treatment first two years, (3) received treatment the second two years, (4) received treatment the first and third year, (5) received treatment the first year only, (6) received treatment the second year only, (7) received treatment only the third year--late recruits, and (8) received no treatment--control group.

Treatment consisted of home visits by paid paraprofessionals and, for parents, visits to the Home Learning Center. Groups Two, Five, and Six received only home visits while Group Seven received only Home Learning Center treatment. All others, except for the control group, received both home visits and Home Learning Center treatment.

The research design was a pretest/posttest control group design. The dependent measure used was the Stanford-Binet. Groups One and Seven obtained posttest means higher than the control group statistically significant at the 1% level, and Groups Two and Three were significantly higher than the control group at the 5% level. Further analysis showed that the greatest longitudinal effect occurred when the child began the program immediately and continued with it for three years. Guinagh et al.

concluded that the concept of using paraprofessionals who are recruited from the local community is a viable answer to selected manpower problems.

Printed Text Materials

Most of the attempts to train parents to manage their children have required the presence of a professional or paraprofessional leader. Within the last seven years, several training texts have been published for parents. These texts have been used as part of training programs for parents conducted by professionals. These publications were designed to suggest home centered behavior management procedures to parents. Krumboltz and Krumboltz's (1972) text Changing Children's Behavior gives principles and actual examples of how to change inappropriate behavior. Illustrations are based on real happenings, such as "generating enthusiasm for school", "learning to enjoy", "improving mathematical skills", and many other management situations parents and educators are often confronted with. Patterson (1971) published a text, Families, for parents and professionals that is based on his research in the area of social learning theory.

Becker's (1971) book, Parents Are Teachers, was designed to be used by either professionals in parent training programs or independently by parents. The objective of Becker's manual was to teach parents to use positive reinforcement systematically in raising their children. Zifferblatt (1970) published a book to guide parents in techniques of reinforcing the study behaviors of their children, and in scheduling study times. Patterson and Gullion (1968) published a programmed text for parents, Living With Children, which presented programmed techniques for parents to use in managing the "problem" behaviors of their children. In 1966, Smith and Smith published a self-instruction booklet with a discussion guide for parents. Gordon (1970) has prepared not only a textbook, but also a workbook and discussion guide for structured parent training in either large group sessions or individually. To date, however, no effect has been made to validate the effects of such learning materials.

Other writers have used a textbook format to provide parents with information on how they can change their children, socially or academically (Dreikurs & Grey, 1970; Dreikurs & Solz, 1964; Ginott, 1969; Miller, 1973; Thornley, 1973).

Training Through Combined Modes

A number of parent training programs have included more than one of the reported training modes. In some cases, parents were amenable to a tutor training program, but were unable to leave the home to receive it. To avoid excluding these parents, Karnes, Teska, Hodgins, and Badger (1970) developed a program in which the major portion of training took place in the home. The mother was provided baby sitting services and transportation so that she could attend the initial meetings. The home meetings were then run by a trained professional and designed to support the teaching principles presented in the meetings.

Shearer and Shearer (1972) reported on the effects of a telecommunications delivery system on training the parents of homebound multiply handicapped children from rural areas (Portage Project). They cited several advantages to training parents in their homes to be behavioral-change agents.

> First, learning is occurring in the parent and child's natural environment; therefore, the problem of transferring to the home what has been learned in a classroom or clinic does not occur. Second, there is a direct and constant access to behavior as it occurs naturally. Third, the maintenance of desired behavior will likely be enhanced in the natural reinforcing agents, will provide them with the skills necessary to deal with new behaviors when they occur (p. 210).

Shearer and Shearer used as their home trainers both professionals and paraprofessionals. The intervention program was implemented with 75 preschool multiply handicapped children living in rural areas. The trainers prepared weekly programs to bring to the homes. They would model teaching technique and recording procedures for the parents and have the parents teach the lesson. The following week, the trainer would return and collect data on the program taught the previous week and collect baseline data on the lesson that was to be taught the following week. If the child did not reach criteria for the previous lesson, the trainer would have the parent continue with the same lesson for the following week. The average I.Q. of the children being taught in the program was 75 as measured by the Cattell Infant Test and the Stanford-Binet Intelligence Test. Using a pretest/posttest design, the average I.Q. gain for children in the project was 13 months in an eight month period.

Peniston (1975), in an evaluation of the Portage Project, concluded that:

> In view of the significant evidence with respect to the effectiveness of PHV (Portage Home-Visit) program it would seem that a model such as a home visit program was to be innovative in changing multiply handicapped preschool children's behavior and in evaluating early childhood educational programs (pp. 9-10).

The research cited indicated that a parent training model in which the major training component included working with parents directly in the home was effective. Weikart (1975) has supported this concept by stating that a combined home training model and preschool is a powerful change agent model.

Programs intended to train parents to teach their children self-help and social skills have also included combinations of training modes. Fredericks, Baldwin, McDonnell, Hofmann, and Harter (1971) videotaped the parent training sessions in which parents were being trained to teach their retarded children. The training sequence began with two, three hour group meetings in which parents were taught basic management skills. Video tapes of the parents working with their child verified certain aspects of the parents' performance. They continuously pointed out the positive aspects of parent participation.

Since all the data were individualized, no group results were reported. Fredericks did report, however, that of the students selected, 85% of their parents chose to participate, and the reaction of the parents was favorable. Most felt they benefited from the instruction on means to help their retarded child "learn to learn".

Champagne and Goldman (1971) reported on a program designed to train parents to use positive reinforcement techniques in teaching their children. Role playing and simulations in small groups were the techniques used to train the parents. Three to five parents were trained in a group with one trainer. The training periods were for two half-days. Audio tape recordings, as well as annotated observations, were used to gather data during the time that the parents were working with their children. The results showed that 11 of the 22 parents increased the use of positive reinforcement, while eight increased the variety of reinforcers they used.

The effectiveness of a home teaching program that included parent intervention, educational television, a visiting paraprofessional, and a travelling classroom was reported by Alford (1970). He selected a group of 121 three, four, and five year old children from a preschool. They were divided into four groups. Group One watched a math television series and had weekly visits from a travelling classroom. Each parent was trained by a visiting paraprofessional weekly. Group Two watched the television math series, and the home visitor visited each child's parents once a week to provide training for the parents. Group Three watched the television math series, and Group Four was given no treatment. Results based upon math test scores show that all three treatment groups scored significantly higher than the control group on number terms, geometric figures, cardinal numbers, and sets and matching forms. The conclusion, based upon the test results, was that the television watching was only effective when combined with one or both of the other intervention procedures.

A comparison between textbook and practicum training in teaching parents behavior modification skills was made by Watson (1974). The academic training for the three mothers included a programmed text and three sets of 35 MM slides. The three sections in the text dealt with reinforcement, shaping, and stimulus control principles and their applications. The slides were used to supplement the programmed text. A true-false test was designed to assess what the parent had learned. The practicum training was carried out through the use of a "cookbook" type of textbook and three 16 MM movie films. These provided models for the parent to follow in teaching self-help skills to his/her handicapped child at home. The practicum training was assessed by a home training specialist who used the Training Proficiency Scale. The results showed that academic training affected the parents' academic performance but not their practical performance, and that combined academic and practicum training improved the parents' academic performance from a baseline average of 43% correct responses on the true-false test to an average of 90%, while the practicum scores quickly increased from a baseline of a near zero to 95%.

Parents have also been provided multi-modal training for teaching their children academic skills. Keele and Harrison (1972) combined small group training sessions and instructional packages to develop a training program for parents to tutor their children in reading. At the same time, they trained paid high school tutors. All kindergarten, first, and second grade students from one school who scored 60% or less on a criterion test for sound symbols were selected. They were randomly assigned to control and experimental groups. The parents of those students who were selected for the experimental group were asked if they would participate in tutoring their own child. An ad was placed in the local newspaper for high school students to do tutoring for $1.75 per hour. Training of the parents and tutors was carried out by the authors in three one and a half hour sessions. Both parents and tutors were requested to work with their children at least four days a week for 15 minute sessions. The treatment ran for six weeks. Analysis of the test data indicated that there was no significant difference between the performance of the parent-tutored students and those taught by the paid tutors. Both groups made statistically significant gains. The researchers concluded that it is feasible to provide untrained parents with materials which carefully prescribe the educational principles that should be used in teaching prerequisite reading skills.

Research demonstrates that parents can be trained to teach their children at home and at training centers. A major limitation to all of the work that has been reported is that the training required human intervention as a major element of the training program.

Instructional Package Development

Concerned parents represent a valuable resource if a way can be found to involve them in the remedial process. The use of learning packages may be one meaningful way of involving them (Hofmeister & Reavis, 1974). Karnes and Zehrabach (1972) have stated that an approach for parent training that currently is emerging is the use of programmed materials through which the parents receive specific instructions as to how to teach specific skills. Thiagarajan, Semmel and Semmel (1974) have prepared a handbook that provides instructional developers with suggested procedures for preparing such training materials.

Jelinek (1975) recommended that after the specific needs of the learners have been identified, the learning package be constructed by writing critical decisions, supportive instructional objectives, and recommendations. She stated that with the help of this type of material the parents know their responsibilities, how to carry them out, and what their child's performance should look like when the program is completed. Others have made similar suggestions for instructional package development (Kapfer & Kapfer, 1972).

Training Parents Only Through the Use of Instructional Packages

In several studies reported, the researchers made an effort to provide training for parents who were for one reason or another unable to attend training sessions at training centers (Lent, 1975; Niedermeyer, 1970; Tannebaum, 1968) and yet sending the professional to each home is, in many cases, too expensive and over taxing on the professional manpower (Tharp & Wetzel, 1969). This expense and manpower taxation is outside the fiscal resources of many rural school districts, eliminating them from participating locally in many of the parent training programs that have been suggested in this review.

Yaman (1971) suggested that a simple and effective way of training parents to teach their children in a home-based program was to design and construct simple, basic, highly structured materials. Guidelines for developing the parent guide are as follows:

1. Minimizing the reading requirements for parents.
2. Providing a means for parents to practice skills being taught.
3. Provide a means for parents to evaluate their own learning.
4. Keeping training procedures as brief as possible (p. 3).

Following these basic principles, she was able to prepare a low cost guide that was effective in training parents in the use of home-based instructional programs. Latham (1971) described the validation process of a mediated program designed to train parents to use behavior modification skills with their children. Hofmeister and Reavis (1974) have provided guidelines for the construction of packages for parent involvement. They concluded that if the material is kept simple and brief, such a package can be used to train parents to teach their child. They also point out that with the number of children failing in the schools today, we cannot afford to pass up parents as potential teaching manpower. Lillie (1975) stated that parent participation with structured programs will provide needed manpower for the successful functioning of ongoing activities. Hofmeister (1974) presented a model for preparing and validating parent teaching packages (see Appendix A).

All the authors cited in this section tended to agree that if highly structured, simple materials can be developed through a systematic process, such a project should be undertaken.

Some research has been carried out that shows the effects of parent participation without professional training (King, 1972; Wade, 1976). Young (1974) reported on such a program. The objective of the study was to validate the effectiveness of an audio-tutorial program that was designed to train the parents of 60 fourth, fifth, and sixth grade students to teach their children multiplication facts. The parents who volunteered were randomly assigned to control and treatment groups.

The treatment group parents were provided with audio-tutorial materials to train them to teach their children. The researcher did not, however, control for the control group teachers' knowledge of the specific skill deficits of their students. The results of the analysis of covariance on the posttest scores on a criterion test indicated that the difference between groups was not statistically significant at the .05 level, but the gain scores for both the control and treatment group were significant at the .05 level. She also reported that gain scores on the norm-referenced test were significant at the .05 level. Her conclusion were that since the control group teachers were aware of the specific multiplication deficiencies of their students, they provided them with additional attention. This caused the control group students to make as great a gain on the posttest as the treatment group.

Reavis (1972) prepared and validated a "parent manual" that could be used to train parents to teach basic math facts without professional assistance. The parents of 153 children who tested at four or more months below grade level in math were contacted and asked if they would be willing to work with their child for ten minutes five times a week on math. Children whose parents agreed were randomly assigned to a control or treatment group. Teaching packages were mailed home to parents of the children assigned to the treatment group. After one month, both groups were posttested and then packages were sent home with the control group students. After one month, both groups were posttested again. The results based upon scores of both groups on the criterion-referenced test yielded an F-ratio significant beyond the .001 level. Reavis concluded that parents did increase their children's basic math fact skills through the use of teaching packages. Eighty percent (80%) of the parents responded positively to using the teaching packages.

Curriculum Rationale

Studies by Bergeth (1973), and Hitchkock and Pinder (1974) showed that for a three year period from 1966 to 1968, a steady drop occurred nationally in students' achievement scores in reading and arithmetic. The decline occurred across all grades, but particularly at grades four through eight. Recent data now indicates that this down trend changed and that scores from 1970 to 1974 had improved (Functional literacy . . ., 1975; National assessment . . ., 1975). The results of these same studies indicated also that the scores of students who attended rural schools were not improving as fast as the median scores of students nationally.

Reading Achievement

The Functional Literacy Basic Reading Performance (1975) report stated that reading is a skill necessary for an individual to perform as a functional citizen today. It is necessary not only for basic survival, but for recreation as well. Based upon the results of the National Assessment of Educational Progress (NAEP) (1974), students who attend extremely rural schools do not receive adequate reading instruction to perform on achievement tests at the national median level.

The NAEP reading assessment was begun in October, 1970, and continued through August, 1971. The sample included four age levels: 9, 13, 17, and 26-35 years. Stratification was carried out with subcategories that were proportional to the national norms, with the subcategories including: sex, color, parental education, region of the country, and the size and type of community in which the subjects were educated. The size and type of community included: "low metro, extreme rural, small place, medium city, main big city, urban fringe, high metro" (p. 42).

The reading areas that were assessed in the study were:

1. Comprehend what is read.
2. Analyze what is read.
3. Use what is read.
4. Reason logically from what is read.
5. Make judgments concerning what is read.
6. Have attitudes about and an interest in reading (pp. ix-xi

The tests were administered by trained testers. Each student underwent a two hour battery of tests, half of which were individually administered. The resulting median scores showed that out of the 10 subcategories of size and type of community, the extreme rural group scored ninth, with only extreme inner city scoring lower. Functional Literacy (1975) obtained similar results with 17 year olds in 1974 in the Mini-Assessment of Functional Literacy.

The results of these and other studies (Farr, Tuinman, & Rowls, 1974; Reading: Summary Data, 1974) indicate that additional emphasis should be placed on reading instruction at the elementary level in extreme rural areas.

Math Achievement

Concern has been building over the lowering scores in computation sections of standardized achievement tests. This change has been most noticeable at grades four through eight (Hosford, 1973). Bell (1974) agrees but he took it beyond mere computational skills, and indicated that there is a lowering of performance in the advanced areas of elementary math. He saw a need for teaching the application of basic skills.

> A sound mathematical base well beyond mere calculation skills is useful or essential for more and more people in their working lives.
>
> Potential occupational needs aside, any criticized "everyman" unable to use mathematics readily is handicapped in understanding (hence participating in) many important decisions affecting public policy and his own personal life (p. 196).

Other researchers have reported similar concerns about the declining performance of students on math achievement tests (Austin & Prevost, 1972a; Why Johnny Can't Add, 1973).

In 1971 the National Assessment of Educational Progress was initiated. The procedures followed for assessing math performance were the same as those (Recipes . . . ., 1974) for assessing the reading achievement (Functional Literacy . . . ., 1975). In comparing the national median scores with those of the subgroups of type and size of community, the researchers found results similar to the results on the reading assessment. The groups ranked from lowest performing to highest performing: extreme inner, extreme rural, small city, medium city, urban fringe, and extreme affluent suburb. The extreme rural and extreme inner city scored consistently below the national median.

In summary, although there does seem to be an improvement in the achievement test scores in reading and math, the scores of elementary school students who attend school in extremely rural areas are consistently lower than the national norms.

Effectiveness of Parents

Teaching Their Children Reading and Math

Recently, studies have been reported that have attempted to determine the effectiveness of parents as teachers of their own children. These studies include teaching reading (Hoskisson, Sherman, & Smith, 1974; Keele & Harrison, 1972; Koven & LeBow, 1973; Skinrud, 1973; Woods, Barnard, & TeSelle, 1974).

In their study comparing the effectiveness of parents and high school tutors (Keele & Harrison, 1972), while both groups made gains, there were no differences between the groups. This indicates that parents can teach their own children at least as effectively as trained high school tutors. They concluded that:

> Structured tutoring by adult tutors is an effective avenue for providing reading readiness skills for kindergarten children and remedial work for first grade children who have not mastered important prerequisites (p. 18).

Hoskisson et al. (1974) reported that although parent participation was inconsistent, they could be trained economically and efficiently to help poor readers. There also is the added advantage that there is some carryover in the way the newly trained parents work with their children at home.

Tannenbaum (1968) reported the results of the Supplementary Teaching Assistance in Reading. He concluded that if provided with structured materials and proper training, parents can become effective remedial reading teachers for their own children.

Another curriculum area in which parents have been trained to teach their own children is arithmetic. A program in which the parent and child met and worked at an urban center was reported (Lincoln, Briscoe, & Williams, 1975). The parents of children who scored at 3.0 or more years below grade level on the math subtest of the Metropolitan Achievement Test were contacted by telephone, and asked if they would participate in a project to help their child improve his/her math skills. Eleven (11) of the 19 parents contacted attended the first meeting. During the sessions, the parents helped thier children only if the child was "stuck". When the parent "got stuck", sometimes the child could help. Following the last session, a posttest was administered, and a t value was computed on the scores of the pre- and posttest. The t value was significant at the .01 level. The researchers concluded that "parents were especially helpful to pupils in learning the number facts at home" (p. 462). An added value to a program of this type was that there was no great expense for special materials or equipment.

From his study, Reavis (1972) concluded that mediated teaching packages used by parents appear to be effective in training parents to teach their children the basic arithmetic facts of addition, subtraction, multiplication, and division.

Summary

In summary, the review of the related literature indicated that:

1. Modes of parent training utilizing small group training were effective means of training parents to teach their own children.
2. Modes of parent training utilizing individual and group training centers were effective means of training parents to teach their own children.
3. Modes of parent training utilizing non-professionals as trainers were an effective means of training parents to teach their own children.
4. Modes of parent training that combine two or more different modes were effective means of training parents to teach their own children.
5. Training parents to teach their children by means of mediated instructional packages was effective.
6. Achievement test performance of students attending extremely rural areas were consistently below the national norms in reading and arithmetic.

PROCEDURE

Population and Sample

The subjects selected for this study were parents and their children who were drawn from nine of the 19 elementary schools in Box Elder County. Box Elder County is a county in the northwestern corner of Utah. It has an area of 5,594 square miles, with a population of 28,129. The majority of the population were members of the Church of Jesus Christ of Latter-Day Saints ("Mormons"). The Mormon church places a high priority on education and family relationships. The occupation of the majority of the population was agricultural or agriculture related.

The subject selection procedure included three steps. First, the principals of nine elementary schools in Box Elder County volunteered to have their schools participate. Second, all the second through sixth grade teachers who volunteered were requested to refer the three children in their classes they considered lowest in basic reading skills and the three children in their classes they considered lowest in basic math skills. Third, the schools were randomly assigned to either a control group or experimental group.

Of the 150 students participating, 107 were males and 43 were females. The student selected ranged in age from seven to 11 years, and attended general education classrooms including second through sixth grade.

Instrumentation

Data pertaining to student performances were gathered using two measures administered as pre- and posttests. Norm-referenced data were gathered with the Wide Range Achievement Test (WRAT) (Jastak & Jastak, 1965). Of the normed tests investigated, the WRAT was easy and quick to administer. It also has an intercorrelation with the more comprehensive California Achievement Test (Tiegs & Clark, 1970) on a similar sample of .83 in arithmetic, 186 in reading, and .81 in spelling. These results indicate there is a substantial relationship between the two tests (Saxton, Blackman, & Tretakoff, 1963). The WRAT has been normed on student populations ranging in age from seven to 11 years, yielding reliability coefficients with a low of .991 using a split-half correlation (Jastak & Jastak, 1965).

The Parent Teaching Package Test (PTPT) is a criterion-referenced measure developed by members of the research staff. The test was developed consistent with Gronlund's (1973) requirement that the criterion instruments be analyzed to insure that the test items maintain a high degree of content validity. The PTPT contained 11 subtests. Each one was designed to test the skills taught in a corresponding Parent Teaching Package. The arithmetic subtests were administered to 100 second through sixth grade students who attend rural schools. One week later, the testers readministered the tests to the students. A similar procedure was followed for establishing the test-retest reliability of the reading subtests. Seventy-two (72) second through sixth grade rural school students were tested by independent testers, and one week later the students were retested with the instrument. Reliability coefficients were determined from the test-retest procedure yielding Pearson Product Moment correlation coefficients ranging from a low of .666 to a high of .989 with an average of .814. The complete set of correlation coefficients is included in Appendix B.

Data were requested from the experimental group parents concerning how they rated the package used, how much time was devoted to using the package and suggestions for improvement of the package. This information was collected with the

Package Evaluation Form (Appendix C) that was provided with each package sent to a parent. The information gathered with this instrument can be found summarized in Appendix H.

Parent Teaching Package Formative Development

The formative development of the parent teaching packages was conducted from September of 1973 to August of 1975. The formative development process is consisted of the following eight stages.

Stage 1: Needs assessment, included (a) review of literature and existing products, and (b) data on needs of target populations.

Stage 2: Curriculum content definition, included (a) preparation of package prospectus, and (b) package sequence.

Stage 3: Develop prototype

Stage 4: Critique by experts

Stage 5: Programmer as parent - revise

Stage 6: Volunteer as parent - revise

Stage 7: Local parent field test - revise

Stage 8: Individual formative evaluation with parents-revise

The activities carried out under each of the eight stages were as follows:

Stage 1

Based upon a needs assessment, it was determined that to meet the needs of the majority of children having learning difficulties in rural areas, packages would be developed which remediate deficiences in basic skill areas which, when absent, most often prevent students from progressing in school. The areas needing immediate attention were arithmetic and reading. Skills were identified within these two areas in which most of the student were deficient.

Stage 2

The skills that were identified through a task analysis of reading were: sound-symbol relationships, blending sounds into word units, word recognition (phonetically irregular words), and vocabulary development. The skills identified through a task analysis of arithmetic were number skills (matching, counting, and naming the numbers 1-10), math combination facts in addition, subtraction, multiplication, and division, carrying and borrowing in addition and subtraction. Time telling was considered to be an important social skill, and, therefore, was considered a skill appropriate for package development. A package prospectus was developed for each of these skills. The prospectus contained the following items: specification of package title, the curriculum content of the package, user population, package format, placement procedures, and prerequisite skills. Because the critical skills most often preventing a student from progressing in school were identified, there was not a continuous flow within the curriculum sequence; however, the packages themselves have been placed in the following sequence:

READING

Sound-Symbol
Blending Sounds
Word Recognition
Vocabulary Building

ARITHMETIC

Number Skills
Math Combination - Addition
Math Combination - Subtraction
Carrying and Borrowing - Time Telling
Math Combination - Multiplication
Math Combination - Division

Stage 3

Package prototypes were prepared for the skills indicated. It was the consensus of the project staff that each package: (1) be self-contained and utilize a pencil and paper medium, (2) teach one child at a time, and (3) one lesson of approximately 20 minutes in length would be taught each day. The main training component of each package was the Parent Manual. The manual trained the parent in child management skills, the direct teaching of the selected skill, and in procedures to monitor the child's daily progress. A Progress Record Form was a component of each package. This form presented the student, parent, and teacher with a record of the child's progress.

Stage 4

Once the prototype of each package was completed, experts in the content area of the package critiqued it. Based upon this critique, the package was modified to improve its probability of being effective.

Stage 5

During this stage, the developers responsible for the package utilized it with several pupils following the package instructions as prepared. Where the developers encountered difficulty in using the package, appropriate revisions were made.

Stage 6

In the "volunteer as parent" field test, the developer gave the revised program materials to untrained volunteers, who then used the package while being observed by the developer. The developer collected data from three sources: (1) an analysis of the written materials used by the pupil, (2) direct observation of the aide-pupil interaction, and (3) an interview with the volunteer. Based upon these data, the developer then made the appropriate changes in the package.

Stage 7

The developer field-tested the packages with parents. In this field test, the developer gave the revised program materials to the parent and the parent worked directly with his own child in the home on a one-to-one basis. The developer collected data from these sources: (1) an analysis of the written materials used by the student, (2) the package evaluation forms that were completed by the parents, and (3) the parent interviews. As a result, the developer made the appropriate changes in the package.

Stage 8

In the "individual formative evaluation with parents", the developer provided the teachers with the revised program materials. The teachers identified which student needed the packages. The parents of these identified students used the package in the home with their child. The developer collected data from three sources: (1) an analysis of the written materials used by the student, (2) the package evaluation forms which were completed by the parents, and (3) parent-teacher interviews. As a result, the developer then made the appropriate revisions in the package.

There was an average of seven revisions made for each package.

Parent Teaching Packages

There was a total of 11 Parent Teaching Packages (PTP). There were four reading packages and seven arithmetic packages. They required no additional materials except paper and pencil.

The reading packages included Sound Symbol, Blending Sounds, Word Recognition, and Vocabulary Building. These packages were designed to train parents to teach their children decoding skills and how to read sight words. The fourth reading package emphasized recognizing and understanding new vocabulary words, as well as improving fluency and rate of oral reading.

The arithmetic packages included Number Skills, Addition, Subtraction, Carrying and Borrowing, Multiplication, Division, and Time Telling. These packages were designed to train parents to teach their children to count and recognize numbers, add, subtract, multiply, and divide basic number facts. The two remaining packages dealt with carrying and borrowing and time telling.

All of the reading and arithmetic packages required parents to teach each skill to a minimum prescribed criteria. A summary of the objectives and criteria for each package can be found in Appendix D.

Teacher's Handbook Package for the Parent Teaching Package System

The Parent Teaching Package system contained a handbook that provided the teacher with information as to how to administer the placement tests, the criteria necessary for a student to receive any of the packages, and sample screening tests. The book was entitled the Teacher's Handbook Package for the Teaching Package System (THPTPS). A copy of the THPTPS can be found in Appendix D.

Testing Procedures

Three testers were selected from a list of tester applicants. All three were female. The criteria for selecting the three testers were: (1) that they be recommended by someone who had seen them working with children, and (2) that they be available during both the pretest and posttest time periods. One tester was a certified psychologist with five years testing experience.

Three training meetings were held. At the first meeting, the testers were provided with the THPTPTS. This handbook provided the tester with test samples and a complete set of test administration directions. The trainer explained procedures that the testers were to follow to insure the confidentiality of all information gathered during the testing sessions. The testers were assigned to read the entire THPTPTS and to practice testing a minimum of three subjects before the second meeting. The second meeting was scheduled for the following week.

In the second meeting, the three testers and two trainers attended. The trainers answered all questions asked by the testers. Each of the five administered three subtests to a different subject who was naive to the test. The subtests included sound symbol, blending sounds, and word recognition. Of the 11 subjects to be administered, these three were the only ones that required subjective evaluation on the part of the tester. It was, therefore, necessary to establish interrater reliability on them. While each person administered the three subtests to the subject, the other four observed and recorded the subject's responses. Following the administration of each battery of three subtests, the testing procedures were critiqued by the four observing members. One of the trainers tabulated the subtest scores for all five subjects, and analyzed the data to determine the interrater reliability. On this first testing, the interrater reliability did not reach the preset standard of .850. The testers were assigned to test a minimum of three subjects. The subjects were to be unfamiliar with the test, and to be tested before the third training session, which was scheduled for one week after the second session.

At the third meeting, one trainer and the three testers attended and followed the same procedures as were followed in the second meeting. Each person tested two different subjects who were naive to the test battery. Interrater reliability correlation coefficients yielded for each subtest were: sound symbol, .932; blending sounds, .888; and word recognition, .994.

Two research staff members met with the principals of the participating schools. Pretest dates were finalized for each school. Each principal was requested to have a room available on a specified date. It was requested that the room be well lighted and free of distractions. They were also asked to assign a person to the tester. This person acted as a "runner", and was responsible for escorting the subjects from their classroom to the testing room so that the tester would be able to test almost continually while in the school. The testers were informed that they were not to discuss any of the children with the teachers in order to avoid any experimental contamination.

Testers prepared a test file for each subject they were assigned to test. The file contained the subject's name, date of birth, grade, teacher, and school. It also contained a copy of the WRAT and copies of the PTPT subtests which were appropriate for the subject's grade level.

Testing was completed in five consecutive school days. The testers reported that the nine participating schools provided rooms and runners that met the requirements specified by the researcher.

The testers returned the subjects' completed file folders to the researcher, who coded all of the data, including the subject's name. The tests were placed in a locked file, and only the Project Director and the researcher had access to it.

At least four days after completion of the testing by the testers, each teacher participating in the treatment group readministered the appropriate PTPT to subjects who had been assigned to the treatment group. The teachers were provided with a copy of the THPTPTS one week prior to the date they were to begin testing. These test results were used for purposes of placing the appropriate PTP with the subject. The criteria for PTPT selection can be found in the THPTPTS (See Appendix E).

Fourteen (14) weeks after the research testers completed pretesting, two of the research staff members met with the principals of all the participating schools. Posttesting dates were set for each school, and the principals were requested to provide a "runner", and the same room as they had for the pretesting.

One trainer met with each of the testers to review the testing procedures. The testers prepared a posttest file for each of the subjects. The material contained in the posttest file was the same as that contained in the pretest file.

The posttesting began 16 weeks after the pretesting had been completed. The testing was completed in five consecutive school days, and the testers reported that the school personnel were cooperative during the testing.

The test scores were tabulated by two of the testers and one independent person. The data were coded and then all of the pretest and posttest data were put onto key punch cards and the data analyses were made.

Summative Evaluation

Nine schools were selected and randomly assigned to either the control or experimental groups as intact groups. Five schools were assigned to the experimental group and four were assigned to the control group. The teachers who volunteered to participate were requested to select the three students who were performing the lowest in reading and the three who were lowest in math.

During October parent teacher conferences, the parents of the students who were selected for the experimental group were asked if they would participate by working with their child on a reading or math task for 20 minutes a day for 16 weeks. The teachers did not report the total number contacted. However, parents of 79 students who had been selected for treatment agreed to participate.

Trained testers were sent from Utah State University to administer the WRAT and PTPT to each of the students. Two weeks later, the teachers readministered the PTPT to the same students. The test results gathered by the trained testers were used for pretest data, while the test results gathered by the teachers were used for selecting the appropriate PTP for each of the students.

The teachers contacted the Field Coordinator and requested the appropriate package for each student. The packages were sent to the teacher, who in turn sent them to the parent.

The teachers were requested to contact the participating parents at least every two weeks, but no more than once a week. The purpose of this contact was to monitor the child's and parent's progress, and to see if the parent was in need of help. It was also intended to be used as a form of motivation for the parent for continued participation.

The Project Field Coordinator contacted each of the experimental group principals according to the same schedule in order to determine if the principal was monitoring the teachers' performance, a task accepted by the principals prior to intervention. The Field Coordinator's schedule can be found in Appendix F. The Field Coordinator also provided the principals with feedback for maintaining the schedule they had been requested to maintain.

When a parent finished teaching one of the packages to the child, the package was returned to the teacher who requested the next package from the Field Coordinator. This procedure was followed for 16 weeks. Although 79 students were assigned and pretested in the experimental group, only 43 students received treatment for the entire 16 week period. A summary of reasons for attrition can be found in Table 4. At the end of the 16 week treatment period, the control group parents were contacted and asked if they would work with their child as experimental group parents had been instructed using one of the PTP. Sixty-eight

(68) of the 71 sets of control group parents agreed to participate. The control group teachers administered the PTPT to the students whose parents agreed to participate. The teachers then requested the appropriate package, as was done with the experimental group students, for each of the control group students. Upon completion of the first package the control group parents were provided with the next appropriate package if it was requested. Table 1 summarizes the testing and treatment design.

Posttest Data

At the end of the 16 week treatment period, the Project staff testers posttested the control and experimental group students using the WRAT and PTPT. The data were analyzed by a one-way analysis of covariance using the pretest scores as covariates. Covariance was selected because of its rigor and its ability to level scores to compensate for pretest differences.

The analysis of variance, analysis of covariance, and Pearson Product Moment correlations were performed using STAT PAC programs (Hirst, 1971) at the Utah State University computer center.

The overall effect of the treatment on the experimental group was analyzed using a chi square. Because of small cell sizes, the Fisher Exact Probability formula was used. The results of the analysis are reported and discussed in the following chapter.

TABLE 1

Testing and Treatment Design

	Subjects Selected Sept. 23	Pretest Students Sept. 25	Random Assignment by Schools Oct. 3	Package Placement Test Oct. 6	Treatment Oct. 13	Posttest Students Mar. 8	Package Placement Test Mar. 8	Treatment Mar. 17
Experimental Group		0		0	X	0		
Control Group		0				0	0	X

RESULTS AND DISCUSSION

Results

Data for the study were analyzed through the following procedures: (1) an analysis of variance was computed on the pretest means of the WRAT, (2) an analysis of variance was computed on the pretest means of the PTPT, (3) an analysis of covariance using the pretest menas as the covariate was computed on the posttest means of the WRAT, (4) an analysis of covariance using the pretest as the covariate was computed on the posttest means of the PTPT. Additional data were gathered using: (1) the monitoring reports submitted by the Field Coordinator, (2) records of parent teacher contacts from the Teacher's Monitoring Form, and (3) parents' attitude toward the Parent Teaching Packages (PTP) as indicated by their written responses on the Package Evaluation Form.

Each of the 150 students in the nine participating schools was pretested. The nine schools were randomly assigned to the control or the experimental group, following which the parents of the experimental group students were contacted and asked if they would work on basic reading or math skills with their child using a PTP. The parents agreed, and were sent packages that were ordered by the teachers. The type of package sent to the parents was based upon the performance of each student on the teacher administered PTPT. At the end of the 16 week treatment period, both the control and experimental groups were posttested with the WRAT and PTPT. After the posttesting by the trained testers, the control group teachers administered the PTPT and according to the results ordered PTP for the students assigned to the control group.

Analysis of Pretest Data

A test for the equivalency of experimental and control groups was conducted. Pretest data for the two groups for each curriculum area, as well as total test means were compared. This analysis was made on the pretest data on the WRAT and PTPT. No significant differences between the control and experimental groups were found on the pretest means in any of the curricular areas, or on the total test means on the WRAT or the PTPT. For a summary of the pretest analysis of variance, see Appendix G.

The author anticipated using an analysis of covariance to compensate for possible heterogeneity of the two groups. Although no significant difference was found between the groups, the analysis of covariance was used as a further safeguard against possible bias in sampling.

Analysis of Posttest Data

Each of the seven hypotheses was stated in the null form earlier in the study (see pp. 4-5). A one-way analysis of covariance between the posttest means of the control and experimental groups using the pretest means as the covariate was conducted in order to test hypotheses 1, 2, 3, 4, and 6. Analysis of covariance for hypotheses 5 and 7 was made on posttest means of rate and accuracy data, while the single analysis on hypotheses 1,2,3,4, and 6 was made on accuracy data only. For a summary of the nine analyses, see Table 2.

Of the nine analyses, none was significantly different at or beyond the .05 level. The results of the analysis show differences of the posttest means between the control and experimental groups on the subtests for PTPT Reading Rate with one and six degrees of freedom reached the .25 level of significance.

Table 2

Summary of Analysis of Covariance of
Posttest Data With Scores on the WRAT and PTPT

Test	Group	Adjusted Raw Score Means	F	P*
Reading WRAT	Control	58.28	.07	.9
	Experimental	60.04		
Arithmetic WRAT	Control	32.76		
	Experimental	33.68	.01	.9
Spelling WRAT	Control	28.08		
	Experimental	27.92	.05	.9
Total WRAT	Control	116.16	.52	.5
	Experimental	117.62	,52	.5
Reading Rate PTPT	Control	169.56		
	Experimental	187.55	1.82	.25
Reading Accuracy PTPT	Control	70.07		
	Experimental	71.04	.07	.9
Arithmetic PTPT	Control	13.98		
	Experimental	16.46	.04	.9
Total Rate PTPT	Control	210.32		
	Experimental	219.46	.39	.75
Total Accuracy PTPT	Control	85.09		
	Experimental	94.02	.72	.5

*With one and six degrees of freedom. All levels of significance were determined from Marascuilo (1971).

The results in Table 2 show that the differences in the adjusted means on the six individual variables favored the experimental group. A chi square was used to determine the probability of all six differences occurring in one direction. Because of the small cell sizes (one and five), the Fisher Exact Probability formula was used (Siegel, 1956). The computation yielded a $p < .05$. These data suggest that although differences on the individual variables were small, the treatment may have had an overall positive effect.

Parent Critique of the Parent Teaching Packages

Along with each Parent Teaching Package, the parent was provided with a Package Evaluation Form (see appendix C). The form contained 11 questions. Three of the questions asked the parent to rate the package on a scale of one to five, one being low and five being high. Four questions asked the parent to indicate the amount of time spent working with the child using the Parent Teaching Package. The remaining four questions were open-ended, asking the parent to indicate: (a) if he/she needed and received help, (b) what he/she liked best about the package, (c) what he/she liked least about the package, and (d) suggestions for improving the package.

Of the 96 packages that were sent to the parents, five Package Evaluation Forms were returned to the Field Coordinator. This was a return of approximately five percent. Even taking into account the known attrition of 46 percent of the experimental group, the return was still only 10 percent. (The attrition is reported in another section.) The results obtained from the Package Evaluation Forms are summarized in Appendix H.

The parents who returned the Parent Evaluation Forms (five percent) rated the packages high. The majority reported that they did not need assistance from the teacher and that they enjoyed working with their child. It was suggested that some of the repetition be reduced because the parent felt that this impeded the child's progress.

Subject Selection

Among other results, the WRAT yielded results in grade level equivalence. A summary of the scores of students who scored above and below grade level on the subtests and the average for the total test results can be found in Table 3.

Of the 150 students selected and pretested, 133 scored below grade level on the total WRAT, while 17 scored above grade level. The 17 students who scored above grade level constituted 11 percent of the sample. Student grade level performance on the individual WRAT subtests has been summarized in Appendix I.

Parent and Teacher Attrition

During the 16 week experimental period, the Field Coordinator met with each of the five participating experimental group principals eight times. One purpose of the visits was to answer the principals' questions concerning the operation of the system. Another purpose was to gather information relating to teacher, parent, and student attrition. One hundred and fifty (150) students were pretested and 142 were posttested. Based upon the Field Coordinator's written report, 22 parents and three teachers dropped out of the program. The attrition of the 25 adults involved 36 students. Table 4 provides a summary of parent, teacher and student attrition.

During the 16 week treatment period, three families dropped out due to factors that were not a function of the Parent Teaching Package system. This included two families moving from the area and a death in the third.

Table 3

Experimental and Control Group Grade Level Performance
On the WRAT Compared to Grade Placement

	N	Below Grade Level Total	Above Grade Level Total	Percent Above Grade Level Total	Below Grade Level Subtests	Above Grade Level Subtests	Percent Above Grade Level Subtests
Experimental Group Pupils	93	83	10	11%	219	60	22
Control Group Pupils	57	50	7	12%	131	40	23
Total	150	133	17	11%	350	100	22

Experimental Group N = 93

Control Group N = 57

Total N = 150

Five parents who dropped out did so primarily because of a lack of time to work with their children using a package. In three cases teachers failed to send packages home according to schedule, and therefore the parents received them three weeks late. During the scheduled meetings, the principals provided the Field Coordinator with teacher reports listing nine families thought to be no longer participating. Two families were asked to use Parent Teaching Packages with two children each. After approximately two weeks, the packages from both families were returned, and no more were sent to them. The three teachers who ceased to participate in the study reported to their principal that they did not have enough time to test students and monitor parents. The attrition of the three teachers affected 12 students, because each had originally identified four students they considered eligible for participation.

Parent Monitoring System

The experimental group principals were provided with a suggested teacher monitoring schedule to direct supervision of their teachers in the project. Each experimental group teacher was provided with a Teacher's Monitoring Form upon which each contact the teacher made with a parent was supposed to be recorded. The Teacher's Monitoring Form can be found in Appendix J. It was recommended to the experimental group teachers that they contact each participating parent at least once every two weeks, but no more than once a week. The purposes of these contacts were to answer any questions the parents might have about the system, provide the parent with feedback concerning the child's progress at school, and provide the parent with support for the work he/she was doing with the child. Seventy-nine (79) students were in the experimental group, and it was recommended that each teacher contact the

Table 4

Parent and Teacher Attrition and Its Effect On Student Attrition

Reasons For Attrition	Parent Attrition	Teacher Attrition	Student Attrition
Parent's Death	1	0	1
Moved Away	2	0	2
Parents Did Not Have Time	5	0	5
Parents Received Packages Too Late	3	0	3
Teachers Suspected Parents Were Not Using Packages	9	0	9
Parent Returned Package Because Another Child Was Already Working on One	2	0	4
Teacher Felt Procedure Was Too Time Consuming	0	3	12
TOTALS	22	3	36

parents of each experimental group child in his/her class approximately eight times. Of the 79 experimental group students, 19 received packages, but indicated that they were discontinuing participation prior to the first contact made by the teachers. For the remaining 60 parents, the total recommended teacher-parent contacts was 480.

Based upon data recorded by the teachers on the Teacher's Monitoring Form, a total of 128 teacher-parent contacts was made. The number of recorded parent-teacher contacts was 27 percent of the recommended teacher-parent contacts. A summary of the teacher-parent contacts can be found in Table 5.

The teachers were not only requested to record the number of times and under what conditions they met with the child's parents, but also the major purpose of the communication. For a summary of the major purposes for teacher-parent contacts, see Appendix K.

The next section of this chapter discusses the results listed in Tables 2, 3, 4, and 5. The discussion of the above results is directly related to the seven hypotheses and four questions asked prior to data collection.

Discussion

The following discussion of results relates the findings of this research with those of similar studies reported in the literature, and interprets the results of this research, which was designed to determine the effectiveness of parents as an academic treatment resource in rural areas.

Hypotheses Testing

Seven hypotheses were proposed (see pp. 4-5). Nine statistical analyses were made to test the hypotheses. The results of the data analysis indicate that the differences between the experimental and control

Table 5
Teacher-Parent Contacts as Recorded
on the Teacher's Monitoring Form

Contact Initiator	Type of Contact					
	Chance Meeting	Phone	Child	Letter Home	School Visit	Home Visit
Teacher	3	55	5	4	36	2
Parent	0	10	5	0	6	2
Total Contacts	3	65	10	4	42	4

Total recorded teacher-parent contacts = 128

Recommended teacher-parent contacts = 480

groups were not statistically significant at or beyond the .05 level on the nine tests.

One of the nine analyses reached the .25 level. It was the results on the Toal PTPT Rate subtest. It must be noted that differences of this size will occur one out of four times by chance. Therefore, although the results were not statistically significant, the possible implications of rate as a basic unit of performance should be discussed.

The Use of Rate as a Basic Unit of Performance Measurement

Of the instructional packages that were sent to the parents, all employed rate as the basic unit of performance measurement. Those rates were established consistent with the performance of individuals who were deemed to have mastered the particular skills.

In general the school program assignments usually must be completed within a given time period. However, rate is not the traditional measure of mastery. The fact that there was no significant difference on the dependent measure between students receiving instruction emphasizing rate of response and those receiving traditional instruction led the researcher to reason that the intensity of treatment was insufficient.

The lack of statistical significance leads to the question of intervening variables which may have contributed to the low treatment intensity. Some factors which appear to have affected the results are attrition, sampling, monitoring, and package use.

Extent and Nature of Attrition

Initially, 150 second through sixth grade students from nine elementary schools were identified and tested. The nine schools were randomly assigned to either the experimental or control group. Five schools with 79 identified students were assigned to the experimental group, and four schools with 71 identified students were assigned to the control group. The attrition eliminated 36 experimental group students, or 49 percent of the students in the fixe experimental intact groups. With a 49 percent reported attrition rate, and no direct means of monitoring parent and teacher participation, one may reason that the total attrition was higher. This assumption is based upon reports by the Field Coordinator that teachers and parents other than those who were reported were no longer participating. It may therefore be determined that less than half of the students assigned to the experimental group received instruction with the Parent Teaching Packages.

The data analysis yielded adjusted means in favor of the experimental group in five out of six cases. The differences in each case were small, which could be expected if the scores of the treated experimental group students had been diluted by scores of the non-treated experimental group students.

Reavis (1972) reported an attrition rate of four percent in a study designed to test the effectiveness of mediated instructional packages that were designed to train parents to teach their children basic math facts. The major procedural difference between this and the Reavis study was that Reavis operated from a university and bypassed the standard school administrative hierarchy, whereas this study was conducted through a public school system. The efficacy of the procedures followed by Reavis are supported by Borg and Gall (1963), who suggested that to obtain a higher percentage of response, the researcher should associate the work that is to be done with an institution that the sample may hold in high esteem.

Contacts made by Reavis with the sample were exclusively through letters from the University. In contrast, this study utilized teacher-parent conferences as the mode of parent contact. This procedural difference may have contributed to the attrition rate of 49 percent and 4 percent for this study and the Reavis study respectively.

An additional problem of operating through the school system was that it required an increased work load for the teachers involved. Three teachers reported that the testing and monitoring required too much time and as a result discontinued participation in the program. Reavis (1972) did not experience this problem because the procedure he employed included bypassing schools.

In summary, the high attrition rate may have been due to one or two of the factors described above: lack of prestige of the agency that was requesting the parents to participate, unusual pressure on the parent to participate because the request was made at the parent teacher conference and face-to-face, additional work for the teacher without additional remuneration, and/or a sampling procedure that added to the parent's work schedule without providing any immediate benefits.

Sampling

Aside from the above mentioned selection problem, an additional concern arose because of the sampling procedure. Teachers for the project were to have been volunteers. However, there is no information to substantiate that all of them were. It is possible that because of the apparent desirability of the PTP, as evidences by the number that were ordered outside of the Project, that one or more of the principals suggested to his/her teachers that it would be helpful to the school curriculum if the teachers would participate, thus obtaining three to six Parent Teaching Packages per teacher for the school. If this were the case, the teacher may have felt enough pressure from the principal's request that he/she could no longer be classified as a volunteer. This factor could have led to teachers not following through with the requested testing and monitoring procedures.

The teachers who participated were requested to select the three students in their classes who performed lowest in reading and/or arithmetic. The selected students scored above the grade level in which they had been placed. A conversation with school district administration revealed that it was improbable that the three lowest performers in any of the selected classes would score above grade level on the WRAT.

One may assume that either the teachers were not aware of the performance levels of some of their students or other factors, such as behavior problems, may have contributed to the teachers' selection of those students. In either case, that segment of the sample was inappropriate for the study, and may have led to a certain amount of disinterest on the part of the parents. A possible explanation for the disinterest was that the parent had seen the child already demonstrate the skills taught in the assigned package, and could see no point in the instruction.

It was the purpose of the instructional packages not to deal with behavior problems, but rather to remediate students' skill deficits in the areas of reading and arithmetic.

The sampling procedure adopted by Reavis (1972) controlled for this type of sampling bias in that the teachers did not select the students. They were selected solely on the basis of results on the WRAT, which was administered by independent testers. The use of independent testers and sample selectors relieves the teachers from making a decision that may be fraught with bias based upon irrelevant factors.

Monitoring

The purpose for the monitoring was three-fold. First, it was intended that if a procedural problem occurred, each level of participant (parent, teacher, or principal) would be able to obtain assistance. Second, it established a means of determining the progress being made by the participants at each level. Third, it was designed to provide each participant an opportunity to be reinforced for following procedures and maintaining progress.

In the monitoring procedure, the Field Coordinator was scheduled to contact each experimental group principal every two weeks. The first contact was made in person at each principal's school. The second contact was made by phone. This alternating personal-telephone contact was to be continued for the 16 week experimental period. The plan was altered after the second personal meeting to make personal meeting of all the Field Coordinator-principal contact. According to reports from the Field Coordinator, the principals appeared to follow the recommended monitoring procedures with their teachers better when personal contacts were the form of communication.

The second phase of the monitoring program was for the principals to monitor each of their respective experimental group teachers at least every two weeks. It was also recommended that the principals meet with their teachers just prior to the arrival of the Field Coordinator. Frequently, however, the Field Coordinator found that the principal had not contacted his experimental group teachers the two previous days. In two cases, teachers were using the Parent Teaching Package system without the knowledge of the principal.

The third phase of the monitoring procedure was a recommended teacher-parent monitoring schedule. The schedule provided the dates that procedural steps needed to be completed. It also recommended that the teachers make contact with the parents of each experimental group student no more than once a week, and no less than once every two weeks. The total minimum recommended teacher-parent contacts were 480. The total recorded teacher-parent contacts were 128. This was approximately 27 percent of the total recommended teacher-parent contacts. For a summary of the number of recorded teacher-parent contacts, and how each contact was made, see Table 5. The teachers were requested to maintain a record of the major topic of each of the contacts they made with parents concerning the Parent Teaching Package System. For a summary of this information, see Appendix K.

This procedure differed from the Reavis (1972) study, in that all monitoring and contact originated from Utah State University, which, for some parents, possibly held greater prestige than communication from a classroom teacher. By sending communication to the parents by letter, each parent received the same letter; consequently, the message that was transmitted was the same for each set of parents. Contrary to that approach, this study relied upon directives sent to principals, who were requested to convey the message to teachers, who were ultimately to contact parents. The procedure was reversed when parents chose to communicate with the Field Coordinator.

It is likely that the hierarchical nature of the monitoring system in this study had a diluting effect on the treatment. Sulzer and Mayer (1972) have stated that to start a new behavior or set of behaviors, immediate and systematic feedback is most appropriate. However, it should be obvious that as this system was set up, there were numerous times when immediate feedback was not available. Therefore, an alternative monitoring system that provided immediate feedback and reinforcement for parent participants might have increased the effects of the treatment.

In addition to inadequate feedback and reinforcement for parents, a follow-up administrative interview revealed the teachers reported a reluctance to discuss academic programming with parents. This may indicate that either teachers do not choose to work with parents who are teaching academic skills to their children in the home, or teachers find this situation threatening. This could result in ineffective monitoring of parent performance by teachers.

Alternative monitoring procedures have been successfully employed in a number of studies. Fredericks et al. (1971), Guinagh (1975), Henderson and Swanson (1973), and Tannenbaum (1968) all trained and utilized monitoring personnel who were not part of the public school teaching staff. In a home-based preschool intervention program, Guinagh (1975) trained paraprofessional home visitors. New participants obtained training from parents who had joined the program earlier and trained paraprofessional home visitors. Fredericks et al (1971), in a study dealing with the effectiveness of parents teaching self-help skills to their homebound handicapped children, reported that the use of trained paraprofessionals and professional teachers as home monitors and trainers was effective. Tannenbaum (1968) trained and paid paraprofessionals to teach parents how to tutor their children in basic reading. The trainees were selected from the neighborhoods in which the parents who were to be trained lived. Tannenbaum referred to the neighborhoods as ghettos, and his rationale for the paraprofessionals' selection procedure he used was that the parents would be more receptive to trainers and monitors with whom they felt they had something in common.

The reported success of a monitoring system utilizing personnel hired and trained outside of the public school setting indicated that this may be a viable alternative to the approach used in this study.

Several studies that have reported treatment success have provided incentives directly to parents for participation (Guinagh, 1975; Niedermeyer, 1973; Patterson, 1976). In the Guinagh study, several approaches were used to encourage the parents to cooperate. The mother was given $2.00 for participating in each testing, and the parents and children were picked up and transported to the testing site for no charge.

Niedermeyer reported that in an attempt to reduce high parent attrition, he scheduled two training meetings a day, one in the later afternoon and one in the evening for working parents. Transportation to meetings and child care service were provided during the meeting. Phone call meeting reminders were used, and the parents were requested to provide RSVP's in writing indicating whether or not they would be attending the training session.

Patterson discussed a program in which the parents were paid $5.00 weekly for "perfect parenting". His definition of this differed with each family he worked with. The parents were monitored both through the data sheets they were required to turn in weekly and by trained personnel who observed them in their home. Each time the parents failed to meet specified criteria, a certain percentage of the $5.00 was withheld. Patterson stated that this procedure was effective not only with parents in the lower socioeconomic strata, but with those in the middle and upper as well.

The literature cited tends to indicate that the use of a variety of incentive systems applied directly to the parents has been effective in maintaining their continued cooperation. It may also be an important factor influencing the effectiveness of the treatment.

Based upon the literature cited, there may be at least four alternatives to the monitoring that was employed in this study. It has been suggested that a system that operates under the name of an institution which the parents perceive to be prestigeous and in turn bypasses the public school administrative hierarchy may be effective. A second alternative is to again bypass the public school system and train personnel to provide training at home. Third, several studies suggest that providing parents with direct incentives for participation has been an effective means of maintaining high level parent performance. The fourth alternative was a combination of two or more of the three previously mentioned.

Parent Teaching Package Evaluation

Ninety-six (96) packages were ordered and sent to parents. A list of the number of individual packages that were ordered can be found in Appendix M. Each package contained a letter requesting the parent, upon completion of the package, to fill out the Package Evaluation Form and return both to the teacher. The teacher was to return the completed evaluation forms to the Field Coordinator.

Of the 96 packages that were delivered to teachers, five evaluation forms were returned containing written responses. Approximately 10 more were returned containing no responses at all. Five out of 96 is approximately five percent, and Borg and Gall (1963) state that if more than 20 percent of the questionnaires sent out are not returned, it is very likely that the findings of the study could be considerably altered if the nonresponding group had answered in a markedly different manner than the responding group.

There were several possible reasons for the lack of response. In some cases, the parents may never have received the packages. The teachers may have become occupied with general teaching activities and forgotten to send the packages to the parents. It is also possible that the teacher chose to use the package in the classroom with the selected student, or possibly with other students in the class. Another reason the forms were not returned may have been that the parent did not use the package enough to be able to evaluate it. The parent may not have seen the Package Evaluation Form. A principal reported to the Field Coordinator that he suspected that two or three of the parents to whom the packages were sent were unable to read well enough to understand the questionnaire. A final possibility is that some of the parents did not want to take the time to fill out the form.

In an attempt to increase the number of evaluation forms filled out and returned, the Field Coordinator went directly to the teachers and asked them personally if they would make a second, or in some cases a third, request of the parents to complete and return the form. This effort yielded no positive results.

Borg and Gall (1963) have suggested several steps to follow when questionnaire returns fall below 80 percent. They suggested that a follow-up letter be sent containing a cover letter and a self-addressed stamped envelope. The second step is to follow again the procedures of the first step, but with a new cover letter. In both cases, the letter would remind the parent that the researcher would appreciate a written response to the questionnaire and its expeditious return. The third step that Borg and Gall suggested was to send a postcard reminder.

Another alternative may have been to prepare a brief interview guide using the same or similar questions that were on the printed evaluation form and contact the parents by phone to administer a telephone interview. This last suggested alternative may, however, bias the response of the parents, and such a possible bias would have to be reported in the discussion of the results.

Administrator and Teacher Attitudes

Together with parents, the school administrators were asked how they and their teachers evaluated the Parent Teaching Package System. During monitoring sessions held with principals, the Field Coordinator received reports that teachers would have preferred to use the packages in their classrooms, rather than sending them home to parents. They felt they could put them to much better use, and avoid the additional work of the placement testing and monitoring that had been requested of them in the research.

From January to December, 1974, the Instructional Technology Project at Utah State University received orders for 1,005 Parent Teaching Packages from parents and teachers in 18 states. During the same period, the Instructional Technology Project received reorders for 219 packages. That information served to indicate that both parents and teachers felt that the PTP served a curriculum need. Reports indicated that the PTP were used by parents in their homes, by teachers in their classrooms, and by paraprofessionals.

Testing

Testing was suggested as a possible factor influencing performance on the dependent measures because of the wide range of reliability coefficients on the subtest of the PTPT. The reliability coefficients were obtained through a test retest procedure. However, because of the similarity of the posttest results on the PTPT and the WRAT, and because of high interrater reliability, testing was ruled out as a factor influencing the obtained results.

Summary of the Discussion

The results of this study indicated that the effects of parents as an academic treatment resource in rural areas may have been influenced by several factors. Among these were the lack of teacher familiarity with rate as a unit of measurement, the high rate of parent and teacher attrition resulting in a high rate of student attrition, students selected possibly not having been drawn from the target population, and a lack of systematic monitoring by teachers of parent performance. The following chapter suggests alternatives for alleviating some of these intervening variables.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study describes the summative evaluation of a parent training model. The model utilized parents in rural areas as the major treatment resource for assisting in remediating selected academic problems of their school age children who had been identified as having learning problems. The parent training mode was self-contained paper and pencil instructional packages.

Forty (40) teachers selected a total of 150 students, whom the teachers identified as the lowest three in reading and/or arithmetic performance in the class. The students were second through sixth graders drawn from nine rural elementary schools. Of the nine schools, five were randomly assigned to the treatment group and four to the control group.

The students were pretested by trained independent testers with a standardized measure, the Wide Range Achievement Test, and a criterion-referenced measure, the Parent Teaching Package Test. The teachers then readministered the PTPT to determine the instructional package that was appropriate for the student's skills. The PTPT assessed 11 areas. They were sound symbols, blending sounds, word recognition, vocabulary building, number skills, addition, subtraction, multiplication, division, carrying and borrowing, and time telling.

An analysis of co-variance was computed using the pretest means as the covariate for the nine subtests, in order to compare the adjusted posttest means of the experimental and control groups. None of the nine test results reached the .05 level of significance.

A chi square analysis of the posttest means indicated that although no significant differences were obtained on the individual subtests, there was an overall effect of the treatment indicated.

Teachers were asked to subjectively evaluate the packages. Their consistent report was that though the parents had not been effective with them, the packages were most effective for training paraprofessionals in the classroom.

Based upon PTP orders to the Instructional Technology Project and reports from teachers using the packages outside of the research project, the PTP appear to have filled a curriculum need for teachers, parents, and paraprofessionals.

Conclusions

The following conclusions are those derived from the results of this research, and should be considered in terms of the population and procedures of the investigation.

1. The purpose of this research was to carry out the summative evaluation of a mediated instructional program which was disseminated by the public schools to parents who, through the use of the materials, would teach their children basic reading and arithmetic. Although the individual subtest results were not statistically significant, the overall treatment appeared to have had a positive effect.
2. Analysis of the data indicated that student, parent, and teacher attrition was high, and therefore possibly diluted the effect of the treatment.
3. An investigation of the grade level scores on the norm-referenced measure indicated that some teachers failed to follow the sampling directions that were provided. The directions requested the teachers to select the three students in the class who were the lowest achievers in arithmetic and reading. However, 11 percent of those students selected scored above grade level on the dependent measure. It is possible that this factor was influential in the failure of the study to attain significant differences between the scores of the treatment and control groups on the dependent measures.

4. The monitoring system, as it was employed, did not appear to provide sufficient direction, feedback and/or reinforcement to the participants of this study for them to have been effective in significantly improving reading and arithmetic achievement of those students who were provided instruction.
5. Although the system, as it was administered, did not significantly improve the reading and arithmetic achievement of the students for whom it was intended, reports from teachers and parents outside of the research project were consistently supportive concerning the instructional packages.

Without any advertisement, teachers, parents, and paraprofessionals from 19 different states ordered over 1,000 packages in a year's time. At the same time, over 200 packages were reordered. From this evidence, one may conclude that the PTP were serving the instructional needs of a number of educators.

Recommendations

The recommendations made are intended for consideration by persons comtemplating research into training parents through the use of mediated instructional materials.

1. The data suggested that because of a lack of cooperation on the part of the experimental group teachers, the effects of the treatment were small. It is therefore suggested that further research be conducted outside of the public school domain to investigate the effectiveness of a mediated instructional program designed to train parents to teach basic reading and arithmetic skills to their children.
2. A lack of personal contact between the program administration and parents may have created communication problems that diluted the effects of the treatment. It is therefore suggested that further

research be conducted to measure the effectiveness of a parent training system that utilizes mediated instructional materials for training parents to teach basic reading and arithmetic skills to their children at home. Included in this model would be trained paraprofessionals who would systematically visit the homes of the participating parents in order to check their progress, answer operational questions, and provide social reinforcement to the parents.

3. The high attrition rate that was reported indicated a lack of incentive for a substantial number of participants. In order to examine this report, further research should be conducted to investigate the effectiveness of the Parent Teaching Package system, including a systematic incentive system for the teachers and parents who participate.
4. Because of probable sampling bias in this study, it is recommended that further research be conducted providing rural parents with PTP training. However, using sampling procedures that are most consistent with the selection systems employed in the public school would provide a representative sample of the school population.
5. Reports of the demands for the Parent Teaching Packages as a training model for classroom aides and paraprofessionals led to the recommendation that further study be conducted to assess the effectiveness of such materials in that setting.
6. The lack of teacher cooperation has implications for the teacher education training programs. It appeared that there was a need for teacher training programs to assume a greater responsibility in training teachers to work more closely

with parents, especially those parents who have children with learning problems.

Recommendations as a Result of Follow-Up Discussions with School District Staff

When the results were analyzed it was clear that the experimental treatment was not implemented as planned.

Parents were not receiving the materials and when materials were received the follow-up telephone calls and monitoring were not being implemented. A meeting was held with district staff to determine what could have been done differently. The following observations were made by district administrators:

1. Many of the teachers were not true volunteers. It was the principals more than the teachers who volunteered.
2. Teachers felt the materials would be more useful in the classroom.
3. Teachers were reluctant to involve parents. One administrator suggested that the involvement of parents was threatening to some teachers.

It became clear that the traditional administrative channel of principal to teacher to parent was not effective. The alternative suggested by a school administrator was to have a site coordinator for a school. This person could be a counselor or special education resource teacher with a promising approach. One of the major differences between this study and previous successful efforts is that this study tried to involve the classroom teacher. The data indicates that this was a mistake. Many of the teachers for attitudinal or time reasons were not prepared to accept the responsibility. A coordinator could ensure that materials were provided and monitoring was done and could also involve those teachers who were interested and by-pass those not interested. In this way a family and child could have access to help regardless of the attitude of individual teachers. Having one central coordinator for a school would make administrative supervison simpler.

Concluding Note

The failure to implement the treatment in the summative evaluation has been, to say the least, disappointing. One positive side effect of the study has been a successful implementing of the approach with severly handicapped children and their families. At the end of the first year of the project, the Exceptional Child Center attempted to apply the package treatment procedures to severely handicapped children in rural areas. This project by-passed the local school and the results indicate both strong support from parents and significant changes in pupil achievement. A preliminary copy of the date relating to the use of packaging with the severely handicapped children given in Appendix N.

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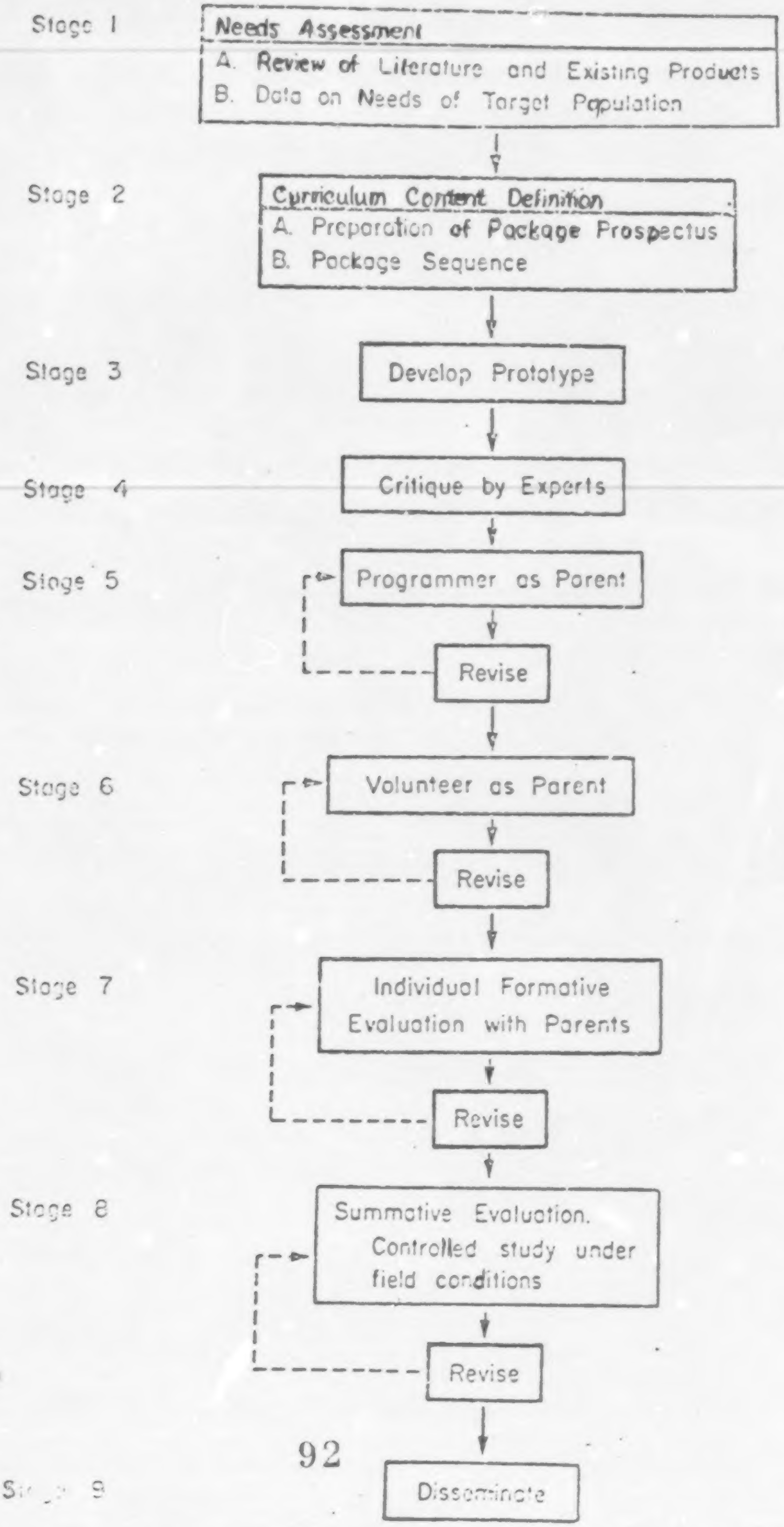
APPENDICES

Appendix A

Parent Teaching Package Research and Development Sequence

Parent Package Development Sequence


Stage 1
Needs Assessment
A. Review of Literature and Existing Products
B. Data on Needs of Target Population
Stage 2
Curriculum Content Definition
A. Preparation of Package Prospectus
B. Package Sequence
Stage 3
Develop Prototype
Stage 4
Critique by Experts
Stage 5
Programmer as Parent
Revise
Stage 6
Volunteer as Parent
Revise
Stage 7
Individual Formative Evaluation with Parents
Revise
Stage 8
Summative Evaluation. Controlled study under field conditions
Revise
Stage 9
Disseminate

Appendix B

Parent Teaching Package Test-Retest
Correlation Coefficients

Parent Teaching Package subtest test retest correlation coefficients

	N	r*
Sound Symbol	72	.763
Blending Sounds	72	.788
Word Recognition	72	.764
Vocabulary Building	28	.989
Addition	94	.666
Subtraction	94	.773
Carrying and Borrowing	59	.895
Multiplication	77	.864
Division	59	.821

*All of the obtained correlation coefficients were significant beyond the .01 level.

Critical values of the Pearson product-moment correlation coefficients were obtained from Wiersma (1975).

Appendix C

Parent Teaching Package Evaluation Form

UTAH STATE UNIVERSITY · LOGAN, UTAH 843

UNIVERSITY AFFILIATED
CEPTIONAL CHILD CENTER

Dear Parents,

Thank you for using this parent teaching package. When you complete the package it is important that you do the following:

(1) Return the package evaluation form to your child's teacher.

(2) Return the record keeping sheets of your child's progress to your child's teacher.

If you find that your child experiences failure on any part of the package for three days in a row you should stop teaching. Do not continue teaching if your child fails three days in a row. Contact your child's teacher immediately and tell her that you have stopped working with your child.

Our thanks to you for taking the time to use this package. It is our belief that all parents are teachers and can assist their children in becoming successful in school work. Your child will benefit from your efforts.

Most sincerely,

Mary Patten

Mary Patten
Field Coordinator
Instructional Technology Project
Exceptional Child Center, UMC 68
Utah State University
Logan, Utah 84321
801-752-4100 Extension 7753

PACKAGE EVALUATION FORM

Fill this form out after you finish using the package.

Please rate the following statements from Low to High by placing a check mark in one of the boxes to show how you feel.

1. The value of the package in improving my child's performance in this area. Low 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ High
2. The ease in using the package materials. Low 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ High
3. Clearness of directions to parents. Low 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ High
4. Write the date that you begin the package. Day Month Year ______
5. Write the date that you finished the package. Day Month Year ______
6. How many days did you work to COMPLETE the package? ______
7. How many times did you work on the package each week? ______
8. Did you need help from your child's teacher? ______

   If yes, tell us how the teacher helped you. ______

9. What did you like best about this package? ______

10. What did you like least about this package? ______

11. List here your suggestions for improving the package.

(Continue on the back of this sheet if necessary.)

APPENDIX D

Parent Teaching Package: Objectives and Criteria

Parent Teaching Packages: Objectives and Criteria

Package	Objectives and Criteria
Sound Symbol	The objective of this package was to train the parent to teach the child to read the sound of each letter at a rate exceeding 75 correct sounds per minute with no errors.
Blending Sounds	The objective of this package was to train the parent to teach the child to read the sounds of the letters, blends, and dipthongs at a rate of 120 correct sounds per minute.
Word Recognition	The objective of this package was to train the parent to teach the child to read words that he/she could not sound out using the rules of the Sound Symbol and Blending Sounds packages. When the child is finished with this instruction, he/she will be able to read the words orally at the rate of 120 correct words per minute.
Vocabulary Building	The objective of this package was to train the parent to teach the child to improve in recognition and understanding of vocabulary words, and to improve fluency and rate of oral reading.
Number Skills	The objective of this package was to train the parent to teach the child to (1) name numbers from 1 to 10, (2) when given a numeral from 1 to 10, be able to say its name, and (3) count from 1 to 10.
Addition	The objective of this package was to train the parent to teach the child to (1) say the answers to single digit addition problems 0 to 9 at a rate of 30 correct answers per minute, and (2) write the answers to single digit addition problems 0 to 9 at a rate of 30 correct answers per minute.
Subtraction	The objective of this package was to train the parent to teach the child to (1) say the answers to single digit subtraction problems 0 to 9 at a rate of 30 correct answers per minute, and (2) write the answers to single digit subtraction problems 0 to 9 at a rate of 30 correct answers per minute.

Package	Objectives and Criteria
Multiplication	The objective of this package was to train the parent to teach the child to (1) say the answers to single digit multiplication problems 0 to 9 at a rate of 30 correct answers per minute, and (2) write the answers to single digit multiplication problems 0 to 9 at a rate of 30 correct answers per minute.
Division	The objective of this package was to train the parent to teach the child to (1) say the answers to division problems with divisors and quotients from 1 to 9 at a rate of 30 correct answers per minute, and (2) write the answers to division problems with divisors and quotients from 1 to 9 at a rate of 30 correct answers per minute.
Carrying and Borrowing	The objective of this package was to train the parent to teach the child to carry in addition problems and borrow in subtraction problems without aids, such as fingers, tally marks, beads, number line, etc.
Time Telling	The objective of this package was to train the parent to teach the child to read a clock using the "2:45" method, rather than the "15 til 3" method.

APPENDIX E

Teacher's Handbook

Parent Teaching Package System

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PARENT TEACHING PACKAGE SCREENING TEST

Purpose: To place elementary grade students in the appropriate Parent Teaching Packages.

For Whom: Students in grades 2-6 having difficulty in mastering basic academic skills in Math and Reading.

Administered By: Regular classroom teachers

Tests Available:

Sound Symbol	Individually Administered
Blending Sounds	
Word Recognition	
Vocabulary Building	
Number Skills	
Math Combinations - Addition	Group Administered
Math Combinations - Subtraction	
Math Combinations - Multiplication	
Math Combinations - Division	
Carrying and Borrowing	
Time Telling	

Packages Used by Whom:

Parents or older siblings in the home

Packages Used for Whom:

Students whose test scores indicate they will benefit from the package.

GENERAL TESTING DIRECTIONS

To provide your student with the greatest help in this testing procedure:

▷ Do:

1. Have all necessary materials available before the test.
2. Sit at the side of the student when you are administering tests individually.
3. Seat the students in a way that they cannot copy from one another when testing a group.
4. Follow the specific directions in the Teacher's Handbook.

▷ Do Not:

5. Provide any assistance during the test.

⁎ T. The capital letter "T" stands for Teacher. Everything you are expected to say will be written in capital letters.

(Directions for things you do, such as pointing, will be in parentheses and not in capital letters.)

⁎ S. The capital letter "S" stands for Student. Responses expected from the student will usually be written out, but not in solid capital letters.

(Directions for things your student is expected to do will be in parentheses.)

ADMINISTERING THE TEST

Find the test guide page for the grade level at which you teach in the yellow section, pages 5 - 9 .

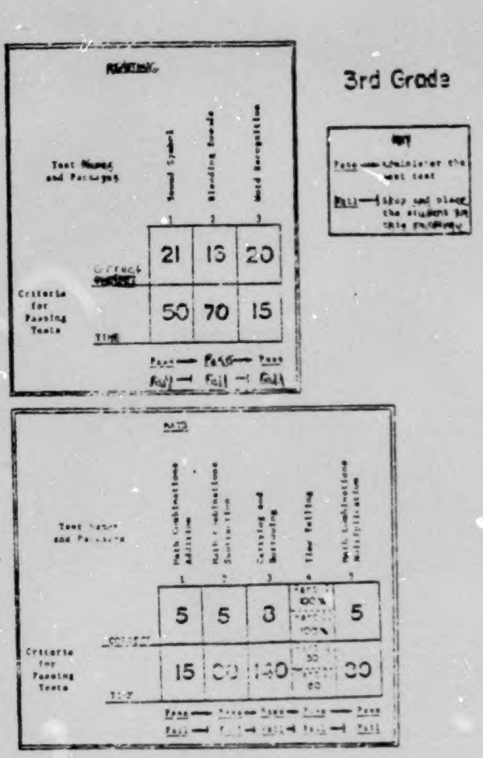
Use only one page in this yellow section. This page indicates which tests to administer to the students and when you should stop testing and place a student in a package.

How to use this page: Example

(a) If you are a third grade teacher, you should use the test guide on page 6 .

(b) Study the key.

(c) Notice there is one block for Reading and one block for Math. You may administer both the Reading and Math tests as indicated for your grade level or only one or the other.



3rd Grade

READING

Test Names and Packages	Sound Symbol 1	Blending Sounds 2	Word Recognition 3
Criteria for Passing Tests — Correct	21	13	20
Criteria for Passing Tests — Time	50	70	15
	Pass →	Pass →	Pass
	Fail ⊣	Fail ⊣	Fail

KEY

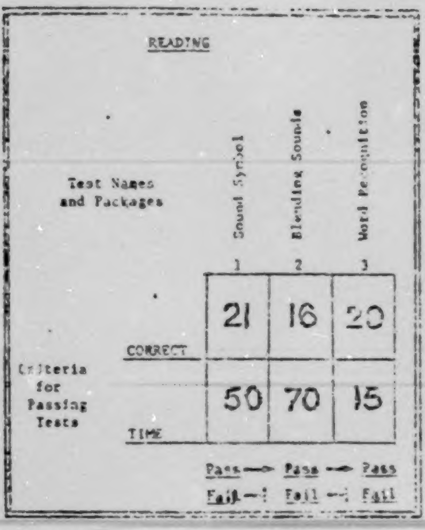
Pass → Administer the next test

Fail ⊣ Stop and place the student in this package

MATH

Test Names and Packages	Math Combinations Addition 1	Math Combinations Subtraction 2	Carrying and Borrowing 3	Time Telling 4	Math Combinations Multiplication 5
Criteria for Passing Tests — Correct	5	5	3	100% 100%	5
Criteria for Passing Tests — Time	15	[illegible]	140	30 60	30
	Pass →	Pass →	Pass →	Pass →	Pass
	Fail ⊣	Fail ⊣	Fail ⊣	Fail ⊣	Fail

(d) To use the Reading block for example, note that the test names and packages are indicated at the top. The numbers below these titles indicate the order in which you should give the tests.


READING
Test Names and Packages
Sound Symbol
Blending Sounds
Word Recognition
1
2
3
CORRECT
TIME
Criteria for Passing Tests
21
16
20
50
70
15
Pass
Pass
Pass
Fail
Fail
Fail

(e) The criteria for passing each test is specified in the "Correct" and "Time" boxes. If the student passes the Sound Symbol test (that is, he reads the _21_ correct sounds in _50_ seconds or less), then go on and administer the Blending Sounds test. If the student fails the Sound Symbol test (that is, he reads less than _21_ correct sounds in more than _50_ seconds), then stop testing and place the student in the Sound Symbol package.

2nd Grade

KEY

Pass → Administer the next test

Fail —| Stop and place the student in this package

READING

Test Names and Packages		1 Sound Symbol	2 Blending Sounds	3 Word Recognition
Criteria for Passing Tests	CORRECT	29	14	20
	TIME	60	75	15

Pass → Pass → Pass

Fail —| Fail —| Fail

MATH

Test Names and Packages		1 Number Skills	2 Math Combinations Addition	3 Math Combinations Subtraction	4 Time Telling
Criteria for Passing Tests	CORRECT	100%	5	5	Part I 100% 100% Part II
	TIME	Part I 40 Part II 20 Part III 10	25	50	Part I 30 60 Part II

Pass → Pass → Pass → Pass

Fail —| Fail —| Fail —| Fail

3rd Grade

READING

Test Names and Packages	Sound Symbol 1	Blending Sounds 2	Word Recognition 3
Criteria for Passing Tests — CORRECT	21	16	20
TIME	50	70	15

Pass → Pass → Pass

Fail ⊣ Fail ⊣ Fail

KEY

Pass →	Administer the next test
Fail ⊣	Stop and place the student in this package

MATH

Test Names and Packages	Math Combinations Addition 1	Math Combinations Subtraction 2	Carrying and Borrowing 3	Time Telling 4	Math Combinations Multiplication 5
Criteria for Passing Tests — CORRECT	5	5	8	Part I 100% Part II 100%	5
TIME	15	30	140	Part I 30 Part II 180	30

Pass → Pass → Pass → Pass → Pass

Fail ⊣ Fail ⊣ Fail ⊣ Fail ⊣ Fail

4th Grade

KEY

Pass → Administer the next test

Fail —| Stop and place the student in this package

READING

Test Names and Packages		Sound Symbol 1	Blending Sounds 2	Word Recognition 3
Criteria for Passing Tests	CORRECT	27	21	20
	TIME	55	50	15
		Pass →	Pass →	Pass
		Fail —|	Fail —|	Fail

MATH

Test Names and Packages		Math Combinations Addition 1	Math Combinations Subtraction 2	Carrying and Borrowing 3	Time Telling 4	Math Combinations Multiplication 5	Math Combinations Division 6
Criteria for Passing Tests	CORRECT	5	5	8	Part I 100% Part II	5	5
	TIME	15	25	100	Part I 30 Part II 180	25	30
		Pass →	Pass →	Pass →	Pass →	Pass →	Pass
		Fail —|	Fail —|	Fail —|	Fail —|	Fail —|	Fail

5th Grade

KEY

Pass → Administer the next test

Fail ⊣ Stop and place the student in this package

READING

Test Names and Packages		1 Sound Symbol	2 Blending Sounds	3 Word Recognition	4 Vocabulary Building
Criteria for Passing Tests	CORRECT	25	20	20	92
	TIME	60	60	10	60 or less
		Pass →	Pass →	Pass →	Pass
		Fail ⊣	Fail ⊣	Fail ⊣	Fail

MATH

Test Names and Packages		1 Math Combinations Addition	2 Math Combinations Subtraction	3 Carrying and Borrowing	4 Time Telling	5 Math Combinations Multiplication	6 Math Combinations Division
Criteria for Passing Tests	CORRECT	5	5	8	Part I 100% Part II 100%	5	5
	TIME	10	10	90	Part I 30 Part II 180	10	15
		Pass →	Pass →	Pass →	Pass →	Pass →	Pass
		Fail ⊣	Fail ⊣	Fail ⊣	Fail ⊣	Fail ⊣	Fail

6th Grade

KEY

Pass → Administer the next test

Fail ⊣ Stop and place the student in this package

READING

Test Names and Packages		1 Sound Symbol	2 Blending Sounds	3 Word Recognition	4 Vocabulary Building
Criteria for Passing Tests	CORRECT	28	20	20	92
	TIME	50	50	10	60 or less
		Pass →	Pass →	Pass →	Pass
		Fail ⊣	Fail ⊣	Fail ⊣	Fail

MATH

Test Names and Packages		1 Math Combinations Addition	2 Math Combinations Subtraction	3 Carrying and Borrowing	4 Time Telling	5 Math Combinations Multiplication	6 Math Combinations Division
Criteria for Passing Tests	CORRECT	5	5	8	Part I 100% Part II 100%	5	5
	TIME	10	15	70	Part I 30 Part II 100	10	15
		Pass →	Pass →	Pass →	Pass →	Pass →	Pass
		Fail ⊣	Fail ⊣	Fail ⊣	Fail ⊣	Fail ⊣	Fail

SOUND SYMBOL

Purpose: This test measures the student's knowledge of letter sounds.

For Whom: This test is given to one student at one time.

Materials Needed:
Sound Symbol Test Sheet - Page 11
Reading Teacher Check Sheet (separate)
1 Pencil
Timing device such as a stopwatch or a clock with a sweep second hand

Before you begin: Study the Sound Chart page 14 as you listen to the Sound Tape. Check the criteria for passing this test as indicated in this cart. Select the criteria that specifies the student's grade level.

Gr.	2	3	4	5	6
CORRECT	29	21	27	25	28
TIME	60	50	35	30	50

SOUND SYMBOL TEST SHEET

Example: m s

n	a	v	ē	p
r	z	ā	d	ch
i	u	s	g	ū
x	h	f	m	b
w	y	k	ī	sh
e	c	o	l	th
j	t	ȳ	ō	wh

Test Directions: T. (Seat the student in front of the Sound Symbol Test Sheet.)

LOOK AT THIS LETTER. (Point to m in the Example.) THE NAME OF THIS LETTER IS M. THE SOUND OF THIS LETTER IS "M". SAY "M".

S. "m"

T. GOOD, LOOK AT THIS LETTER. (Point to s.) THE NAME OF THIS LETTER IS S. THE SOUND OF THIS LETTER IS "S". READ THE SOUND OF THIS LETTER.

S. "s"

T. GOOD READING "S".

Correction Procedure for the Example Only

If the student reads the name of the letter just say:
THAT IS THE NAME OF THE LETTER.
NOW READ THE SOUND OF THE LETTER.

T. (Point to the Sound Symbol Test Sheet.)

HERE IS A SHEET WITH LETTERS ON IT. READ ME THE SOUND OF EACH LETTER. BEGIN WITH THIS SOUND AND CONTINUE UNTIL YOU HAVE READ THE SOUND OF ALL THE LETTERS ON THIS SHEET. READ THE SOUNDS AS QUICKLY AS YOU CAN.

(T. points to "n" and moves finger across to the right.) (Start timing as soon as the student reads the first sound and stop timing when the student reads the last sound.) (Mark a slash through each letter that the student misses on the Sound Symbol Teacher Check Sheet.)

(If the student skips a complete row of letters, allow him to complete the test and then point to the first letter in the row that he skipped and say:) YOU SKIPPED THIS ROW. BEGIN HERE AND FINISH READING ALL THE LETTERS IN THIS ROW. (Add this number of seconds to the total time.)

After Testing: Record on the Reading Teacher Check Sheet:

1. The total time it took the student to read the sounds.
2. The total number of errors made by the student when he read the sounds.

Can the student use this package?

No: If the student passes this test, he does not need this package. Administer the next test.

Yes: If the student fails this test, he needs the Sound Symbol package.

SOUND CHART

SYMBOL	KEY WORD	SYMBOL	KEY WORD
m	me, him	h	hat, how
a	apple, fat	u	up, rug
s	so, kiss	g	go, rag
			or
ē	eat, me		gem, general
f	full, if	l	little, will
d	lid, feed	w	win, watch
r	ran, rip	sh	shoe, bush
i	it, pin	k	kiss, milk
th	that, them	ō	open, go
	or		
	thin, thick	v	very, give
c	cat, traffic	p	pat, sip
	or		
	city, cemetery	ch	chair, witch
o	ox, not	e	end, pen
n	not, sun	b	big, rib
t	top, hit	ī	ice, while
ā	ate, name	y	yes, you

SYMBOL	KEY WORD
j	jump, jeep
x	box, six
ȳ	my, cry or carry, happy
wh	where, whale
z	zoo, buzz
ū	useful, unite

BLENDING SOUNDS TEST SHEET

klert	cooz	iph	kain
beek	wir	phune	bauk
nawt	teal	shigh	tharb
jurl	gode	zang	moib
vout	kew	hine	puel
goep	dorn	fase	kowt
beke	quat	vay	riek
neip	leigh	sey	moy

BLENDING SOUNDS

Purpose: This test measures the student's knowledge of vowel dipthongs and irregular vowels, and his ability to blend sounds into words.

For Whom: This test is given to one student at one time.

Materials Needed:
Blending Sounds Test Sheet - page 16
Reading Teacher Check Sheet (separate)
1 Pencil
Timing device such as a stopwatch or a clock with a sweep second hand

Before you begin: Study the Blending Sounds Key page 19. Check the criteria for passing this test as indicated in this chart. Select the criteria that specifies the student's grade level.

Gr.	2	3	4	5	6
CORRECT	14	13	21	20	20
TIME	75	70	50	60	50

Test Directions: T. (Seat the student in front of the Blending Sounds Test Sheet.) (Point to the Blending Sounds Test Sheet.) HERE IS A SHEET WITH NONSENSE WORDS ON IT. READ EACH WORD BY BLENDING THE SOUNDS TOGETHER QUICKLY. BEGIN WITH THIS WORD AND CONTINUE UNTIL YOU HAVE READ ALL THE WORDS ON THIS SHEET. (T. points to "klert" and moves finger across to the right. Start timing as soon as the student reads the first word and stop timing when the student reads the last word. Mark a slash through the words that the student misses on the Blending Sounds Teacher Check Sheet. If the student skips a complete row of words, allow him to complete the test and then point to the first word in the row that he skipped and say:) YOU SKIPPED THIS ROW. BEGIN HERE AND FINISH READING ALL THE WORDS IN THIS ROW. (Add this number of seconds to the total time.)

After Testing: Record on the Reading Teacher Check Sheet:

1. The total time it took the student to read the words.
2. The total number of errors made by the student when he read the words.

Can the student use this package?

No: If the student passes this test, he does not need this package. Administer the next test.

Yes: If the student fails this test, he needs the Blending Sounds Package.

BLENDING SOUNDS KEY

	NONSENSE WORD	AS IN THE WORD
Row One	klert	clerk
	cooz	choose
	iph	if
	cain	cane
Row Two	beek	beak
	wir	were
	phune	tune
	bauk	taught
Row Three	nawt	knot
	teal	seal
	shigh	shy
	tharb	lard
Row Four	jurl	curl
	gode	code
	zang	sand
	moib	foil
Row Five	vout	out
	kew	cue
	hine	dine
	puel	fuel

	NONSENSE WORD	AS IN THE WORD
Row Six	goep	cope
	dorn	adorn
	fase	face
	kowt	out
Row Seven	beke	beak
	quat	fat
	vay	say
	riek	shriek
Row Eight	neip	snipe
	leigh	lay
	sey	see
	moy	boy

WORD RECOGNITION TEST SHEET

two have were mother where

who heavy often push friend

answer minute sign wild move

special thought quiet piece behind

WORD RECOGNITION

Purpose: This test measures the student's knowledge of sight vocabulary.

For Whom: This test is given to one student at one time.

Materials Needed:
Word Recognition Test Sheet - page 21
Reading Teacher Check Sheet (separate)
1 Pencil
Timing device such as a stopwatch or a clock with a sweep second hand

Before you begin: Check the criteria for passing this test as indicated in this chart. Select the criteria that specifies the student's grade level.

Gr.	2	3	4	5	6
CORRECT	20	20	20	20	20
TIME	15	15	15	10	10

Test Directions: T. (Seat the student in front of the Word Recognition Test Sheet. Point to the word "two" and move finger across to the right.)

HERE IS A SHEET WITH WORDS ON IT. READ EACH WORD. BEGIN WITH THIS FIRST WORD AND CONTINUE UNTIL YOU READ ALL THE WORDS ON THIS SHEET. READ THE WORDS AS QUICKLY AS YOU CAN.

(Start timing when the student reads the first word and stop timing when he reads the last word. Mark a slash through each word that the student misses on the Word Recognition Teacher Check Sheet. If the student skips a complete row of words, allow him to complete the test, and then point to the first word in the row that he skipped and say:)

YOU SKIPPED THIS ROW. BEGIN HERE AND FINISH READING ALL THE WORDS IN THIS ROW.

(Add this number of seconds to the total time.)

After Testing: Record on the Reading Teacher Check Sheet:

1. The total time it took the student to read the words.
2. The total number of errors made by the student when he read the words.

Can the student use this package?

No: If the student passes this test, he does not need this package. Administer the next test.

Yes: If the student fails this test, he needs the Word Recognition package.

VOCABULARY BUILDING TEST SHEET

They could not, however, reach the city the first day. When night came on, they went into a wood to sleep. The donkey and the dog laid themselves under a gigantic tree, and the cat climbed up into its branches. The cock flew up to the very top of the tree. Before he went to sleep, he looked out on all sides of him to see that everything was well. In doing this, he saw far off something bright and shining. Calling to his companions, he said, "There must be a house no great way off, for I see a light."

Before it was quite dark, the old man also went to bed. He was always up by sunrise, and that was very early in summer on the mountain. During the night the wind arose. It blew so hard that the hut shook. The beams all creaked. The great wind roared and moaned through the big chimney as if in anguish. In the old pine tree, too, it blew a blast that broke all of the old branches off angrily. In the midst of it all, the old man got up saying to himself, "The little child will be afraid."

When I came down from my apartment in the tree, I looked about me again. The first thing I found was the boat. It lay as the wind and the sea had tossed it, upon the land, about two miles to my right. I walked as far as I could upon the shore to get to it. But I found a neck or inlet of water between me and the boat, which was about half a mile wide. So I came back for the time, to think about how I could get to the boat; for I needed to find food.

Purpose: This test measures the student's ability in oral reading, and word recognition.

For Whom: This test is given to one student at one time.

Materials Needed:
Vocabulary Building Test Sheet - Page 24
Vocabulary Building Record Sheet - separate
1 Pencil
Timing device such as a stopwatch or a clock with a sweep second hand.

Before you begin: Criteria for passing this test is that the student must read one of the paragraphs in 60 seconds or less and with 8 errors or less.

Test Directions: T. (Seat the student in front of the Vocabulary Building Test Sheet.) WHEN I SAY GO, READ ALOUD THE FIRST PARAGRAPH. (Start timing when the student says the first word and stop timing when he says the last word in the paragraph.) (Indicate where the student makes his errors on the Vocabulary Building Record Sheet.) (Repeat the same directions to the student for paragraphs 2 and 3.)

After Testing: Record on the Vocabulary Building Record Sheet:

1. The total time it took the student to read each paragraph.
2. The total number of errors made by the student in each paragraph.

Can the student use this package?

To use this package the student must:
Read one of the paragraphs in 60 seconds or less with 8 errors or less.

The student is not ready for this package if he:
Read one of the paragraphs in more than 60 seconds or made more than 8 errors in that paragraph.

NUMBER SKILLS

Purpose: This test measures the student's ability to match, name, and count the numbers 1 to 10.

For Whom: This test is given to one student at one time.

Materials Needed:
1 Number Board
1 Set Number Cards (1-10)
1 Number Skills Record Sheet
1 Pencil

Before you begin: The student must complete each part of this test with 100% accuracy.

Test Directions: Part I - Matching

T. (Place the Number Board in front of the student and hold the number cards in your hand.) I AM GOING TO HAND YOU A NUMBER JUST LIKE ONE OF THESE. (Run your finger under the Number Board. Hand a number card to the student.) PLACE THIS NUMBER BELOW THE SAME NUMBER ON THE NUMBER BOARD.

S. (Places the number under the corresponding number on the Number Board.)

T. (Continue to hand the student the number cards, in random order, and one at a time until the student has placed all of the number cards below a number on the Number Board.)

Correction Procedure

> If the student places the number card on the Number Board, say: PLACE THE NUMBER CARD BELOW THE NUMBER BOARD.

Part II - Naming

T. (Only administer Part II if the student completed

Part I with 100% accuracy.) (Hold the number cards in your hand.) I AM GOING TO PLACE A NUMBER CARD IN FRONT OF YOU, AND I WANT YOU TO TELL ME THE NAME OF EACH NUMBER. (Place the cards in front of the student in random order and one at a time. If the student cannot name the number within 2 seconds, say nothing, and present him with the next card.)

Part III - Counting

T. (Only administer Part II if the student completed Part II with 100% accuracy.)
WHEN I SAY GO, COUNT TO 10 ALOUD.

After Testing: Record on the Number Skills Record Sheet:

1. An "X" if the child successfully completed each part of this subtest with 100% accuracy.
2. A "/" if the student did not complete each part with 100% accuracy.

Can the student use this package?

No: If the student passes this test, he does not need this package. Administer the next test.

Yes: If the student fails any part of this test, he needs the Number Skills package.

MATH COMBINATIONS - ADDITION

Purpose: This test measures the student's knowledge of the addition math combination facts 0-9.

For Whom: This test may be given to more than one student at one time.

Materials Needed:
Math Combinations Test Sheet (separate)
Timing device such as a stopwatch or a clock with a sweep second hand
Math Combination Teacher Check Sheet
Answer Key - page 34

Before you begin: Check the criteria for passing this test as indicated on this chart. Use this chart to time the test according to the student's grade level.

Gr.	2	3	4	5	6
CORRECT	5	5	5	5	5
TIME	25	15	15	10	10

Test Directions:

T. (Pass out the test paper face down.) DO NOT TURN THIS PAPER OVER UNTIL I TELL YOU. TURN YOUR PAPER OAVER AND WRITE YOUR WHOLE NAME ON THE LINE THAT SAYS "NAME", YOUR AGE ON THE LINE THAT SAYS "AGE" AND TODAY'S DATE ON THE LINE THAT SAYS "DATE".

S. (Turns paper over and writes whole name, age, and date.)

T. WHEN I SAY "GO" WRITE AN ANSWER TO EACH OF THE PROBLEMS IN ONLY THE FIRST ROW. STOP WHEN I SAY "STOP". IF YOU FINISH THE FIRST ROW BEFORE I SAY STOP, TURN YOUR PAPER FACE DOWN. DO NOT GO ON TO THE NEXT ROW. READY, GO.

S. (Writes answers to the problems in the first row.)

T. (Stop the student at the time specified in the above chart.) STOP! EACH OF YOU TURN YOUR PAPER FACE DOWN.

After Testing:
Collect the test sheet and score it before further testing
Score the test using the Answer Key
Record the score on the Math Combination Test Sheet

Can the student use this package?

No: If he passes this test, he does not need this package. Administer the next test.

Yes: If the student fails this test, he needs the Math Combinations - Addition package.

MATH COMBINATIONS - SUBTRACTION

Purpose: This test measures the student's knowledge of the subtraction math combination facts 0-9.

For Whom: This test may be given to more than one student at one time.

Materials Needed:
Math Combination Test Sheet (separate)
Timing device such as a stopwatch or a clock with a sweep second hand
Answer Key - page 54
Math Combination Teacher Check Sheet

Before you begin: Check the criteria for passing this test as indicated in this chart. Use this chart to time the test according to the student's grade level.

Gr.	2	3	4	5	6
CORRECT	5	5	5	5	5
TIME	50	30	25	10	15

Test Directions:

T. (Pass out the test paper face down.) DO NOT TURN THIS PAPER OVER UNTIL I TELL YOU. WHEN I SAY GO WRITE AN ANSWER TO EACH OF THE PROBLEMS IN ONLY THE SECOND ROW. STOP WHEN I SAY "STOP". IF YOU FINISH THE SECOND ROW BEFORE I SAY STOP, TURN YOUR PAPER FACE DOWN. DO NOT GO ON TO THE NEXT ROW. READY, GO.

S. (Writes answers to the problems in the second row.)

T. (Stop the student at the time specified in the above chart.) STOP! EACH OF YOU TURN YOUR PAPER FACE DOWN.

After Testing:
Collect the test sheet and score it before further testing
Score the test using the Answer Key
Record the score on the Math Combination Test Sheet.

Can the student use this package?

No: If the student passes this test, he does not need this package. Administer the next test.

Yes: If the student fails this test, he needs the Math Combinations - Subtraction package.

CARRYING AND BORROWING

Purpose: This test measures the student's knowledge of carrying and borrowing in addition and subtraction 0-9.

For Whom: This test may be given to more than one student at one time.

Materials Needed:
Math Combination Test Sheet (separate)
Timing device such as a stopwatch or a clock with a sweep second hand
Answer Key - page 34
Math Combination Teacher Check Sheet

Before you begin: Check the criteria for passing this test as indicated in this chart. Use this chart to time the test according to the student's grade level.

Gr.	2	3	4	5	6
CORRECT	X	8	8	8	8
TIME	X	140	100	90	70

Test Directions:

T. (Pass out the test paper face down.) DO NOT TURN THIS PAPER OVER UNTIL I TELL YOU. WHEN I SAY GO WRITE AN ANSWER TO EACH OF THE PROBLEMS IN ONLY THE THIRD ROW. STOP WHEN I SAY "STOP". IF YOU FINISH THE THIRD ROW BEFORE I SAY STOP, TURN YOUR PAPER FACE DOWN. DO NOT GO ON TO THE NEXT ROW. READY, GO.

S. (Writes answers to the problems in the third row.)

T. (Stop the student at the time specified in the above chart.) STOP! EACH OF YOU TURN YOUR PAPER FACE DOWN.

After Testing:
Collect the test sheet and score it before further testing
Score the test using the Answer Key
Record the score on the Math Combination Test Sheet

Can the student use this package?

No: If the student passes this test, he does not need this package. Administer the next test.

Yes: If the student fails this test, he needs the Carrying and Borrowing package.

MATH COMBINATIONS - MULTIPLICATION

Purpose: This test measures the student's knowledge of the multiplication math combination facts 0-9.

For Whom: This test may be given to more than one child at one time.

Materials Needed:
Math Combination Test Sheet (separate)
Timing device such as a stopwatch or a clock with a sweep second hand
Answer Key - page 34
Math Combination Teacher Check Sheet

Before you begin: Check the criteria for passing this test as indicated in this chart. Use this chart to time the test according to the student's grade level.

Gr.	2	3	4	5	6
CORRECT	X	5	5	5	5
TIME	X	30	25	10	10

Test Directions:

T. (Pass out the test paper face down.) DO NOT TURN THIS PAPER OVER UNTIL I TELL YOU. WHEN I SAY GO WRITE AN ANSWER TO EACH OF THE PROBLEMS IN ONLY THE FOURTH ROW. STOP WHEN I SAY "STOP". IF YOU FINISH THE FOURTH ROW BEFORE I SAY STOP, TURN YOUR PAPER FACE DOWN. DO NOT GO ON TO THE NEXT ROW. READY, GO.

S. (Writes answers to the problems in the fourth row.)

T. (Stop the student at the time specified in the above chart.) STOP! EACH OF YOU TURN YOUR PAPER FACE DOWN.

After Testing:
Collect the test sheet and score it before further testing
Score the test using the Answer Key
Record the score on the Math Combination Test Sheet

Can the student use this package?

No: If he passes this test, he does not need this package. Administer the next test.

Yes: If the student fails this test, he needs the Math Combinations - Multiplication package.

MATH COMBINATIONS - DIVISION

Purpose: This test measures the student's knowledge of the division math combination facts 0-9.

For Whom: This test may be given to more than one child at one time.

Materials Needed:
Math Combination Test Sheet (separate)
Timing device such as a stopwatch or a clock with a sweep second hand
Answer Key - page 34
Math Combination Teacher Check Sheet

Before you begin: Check the criteria for passing this test as indicated in this chart. Use this chart to time the test according to the student's grade level.

Gr.	2	3	4	5	6
CORRECT	X	X	5	5	5
TIME	X	X	30	15	15

Test Directions:

T. (Pass out the test paper face down.) DO NOT TURN THIS PAPER OVER UNTIL I TELL YOU. WHEN I SAY GO WRITE AN ANSWER TO EACH OF THE PROBLEMS IN THE FIFTH ROW. STOP WHEN I SAY STOP. IF YOU FINISH THE FIFTH ROW BEFORE I SAY STOP, TURN YOUR PAPER FACE DOWN. READY GO.

S. (Writes answers to the problems in the fifth row.)

T. (Stop the student at the time specified in the above chart.) STOP! EACH OF YOU TURN YOUR PAPER FACE DOWN.

After Testing:
Score the test using the Answer Key
Record the score on the Math Combination Test Sheet

Can the student use this package?

No: If the student passes this test, he does not need this package.

Yes: If the student fails this test, he needs the Math Combination - Division package.

ANSWER KEY FOR MATH COMBINATIONS TEST SHEET

Addition

1.

$$\begin{array}{r} 7 \\ +3 \\ \hline 10 \end{array} \qquad \begin{array}{r} 8 \\ +4 \\ \hline 12 \end{array} \qquad \begin{array}{r} 9 \\ +6 \\ \hline 15 \end{array} \qquad \begin{array}{r} 7 \\ +6 \\ \hline 13 \end{array} \qquad \begin{array}{r} 8 \\ +9 \\ \hline 17 \end{array}$$

Subtraction

2.

$$\begin{array}{r} 12 \\ -3 \\ \hline 9 \end{array} \qquad \begin{array}{r} 14 \\ -6 \\ \hline 8 \end{array} \qquad \begin{array}{r} 12 \\ -5 \\ \hline 7 \end{array} \qquad \begin{array}{r} 13 \\ -7 \\ \hline 6 \end{array} \qquad \begin{array}{r} 12 \\ -8 \\ \hline 4 \end{array}$$

Carrying and Borrowing

3.

$$\begin{array}{r} 42 \\ +9 \\ \hline 51 \end{array} \qquad \begin{array}{r} 58 \\ +35 \\ \hline 93 \end{array} \qquad \begin{array}{r} 479 \\ +215 \\ \hline 694 \end{array} \qquad \begin{array}{r} 4509 \\ +8734 \\ \hline 13243 \end{array} \qquad \begin{array}{r} 32 \\ -9 \\ \hline 23 \end{array} \qquad \begin{array}{r} 42 \\ -15 \\ \hline 27 \end{array} \qquad \begin{array}{r} 687 \\ -299 \\ \hline 388 \end{array} \qquad \begin{array}{r} 9833 \\ -4050 \\ \hline 5783 \end{array}$$

Multiplication

4.

$$\begin{array}{r} 8 \\ \times\ 3 \\ \hline 24 \end{array} \qquad \begin{array}{r} 9 \\ \times\ 6 \\ \hline 54 \end{array} \qquad \begin{array}{r} 8 \\ \times\ 9 \\ \hline 72 \end{array} \qquad \begin{array}{r} 6 \\ \times\ 8 \\ \hline 48 \end{array} \qquad \begin{array}{r} 8 \\ \times\ 7 \\ \hline 56 \end{array}$$

Division

5.

$$\begin{array}{r} 6 \\ 9\overline{)54} \end{array} \qquad \begin{array}{r} 8 \\ 8\overline{)64} \end{array} \qquad \begin{array}{r} 9 \\ 3\overline{)27} \end{array} \qquad \begin{array}{r} 5 \\ 6\overline{)30} \end{array} \qquad \begin{array}{r} 4 \\ 9\overline{)36} \end{array}$$

TIME TELLING

Purpose: This test measures the student's knowledge of time telling.

For Whom: This test may be given to more than one student at one time.

Materials Needed: Time Telling Test Sheets, Part I and Part II
Timing device such as a stopwatch or a clock with a sweep second hand

Before you begin: Cover all the clocks in the classroom. The student is to complete each part of this subtest with 100% accuracy. The student is allowed 1 minute to complete Part I of this test and is allowed 3 minutes to complete Part II of this test.

Test Directions: Part I

T. (Pass out Part II- Time Telling Test Sheet, face down.) TURN YOUR PAPER FACE UP AND WRITE YOUR NAME ON THE LINE THAT SAYS STUDENT'S FULL NAME.

S. (Turns paper over and writes name.)

T. LOOK AT THE CLOCK ON YOUR TEST SHEET. WHEN I SAY GO WRITE THE NUMBERS ON THE CLOCK. STOP WHEN I SAY STOP. READY, GO.

S. (Writes the numbers on the clock.)

T. (At the end of 1 minute.) STOP. TURN YOUR PAPER FACE DOWN. (Check to make sure that each student has completed this part of the test with 100% accuracy before giving Part II of this test to the student.)

Part II

T. (Pass out Part II - Time Telling Test Sheet, face down.) TURN YOUR PAPER FACE UP AND WRITE YOUR NAME ON THE LINE THAT SAYS STUDENT'S FULL NAME.

S. (Turns paper over and writes name.)

T. WHEN I SAY GO WRITE THE CORRECT TIME OF EACH CLOCK ON THE LINES IN THE BOXES. STOP WHEN I SAY STOP AND

TURN YOUR PAPER FACE DOWN. READY, GO.

S. (Writes the correct time of each clock on the lines in the boxes.)

T. (At the end of 3 minutes.) STOP! EACH OF YOU TURN YOUR PAPER FACE DOWN.

After Testing: Record on the Time Telling Record Sheet:

1. An "X" if the child successfully completed each part of this test with 100% accuracy.
2. An "/" if the student did not complete each part of this test with 100% accuracy.

Can the student use this package?

No: If he correctly answered all the problems in Parts I and II of this subtest.

Yes: If he missed Part I, begin the student in Book A.
If he missed Part II, Nos. 1-4, begin the student in Book B.
If he missed Part II, Nos. 5 or 6, begin the student in Book C.
If he missed Part II, Nos. 7 or 8, begin the student in Book D.

PROCEDURE TO INITIATE THE PARENTS TO THE PACKAGES

Step One: Phone the parent at home once you have received the packages and you have studied them.

Give the parent the following information:

- you have tested the child and find he can use more work in ______________________.
- the parent can help the child at home through the use of a Parent Teaching Package in ______________________________.
- the package contains all the materials needed to teach the child.
- the Parent's Manual tells the parent exactly what he is to do and say and exactly what the child should do and say.
- the package takes about one month to complete if worked on daily.

Ask the parents if they are willing to use the package with the child.

If the parent agrees to use the package, give the parent the following instructions:

- you will be sending the package home
- they are to read the Parent's Manual
- call you at home or school if they have any questions.

Step Two: Send the package home either with the student, through personal contact, or the mail.

Step Three: Monitor the student's progress using the procedure on the next page.

PROCEDURE TO MONITOR STUDENT PROGRESS

First Week

Phone the parent after he has had the package one week. Check to make sure the parent has begun the package. Answer any questions. Relate your interest in the student's progress.

Second Week

Phone the parent. Ask if the parent has any questions and check on the student's progress.

Third Week

Phone the parent and check on the student's progress.

Fourth Week

Phone the parent. Relate your interest in the student's progress. Ask how close they are to completing the package.

Fifth Week

Phone the parent. Ask how close they are to completing the package. If the parent and child have completed the program, ask that they return the progress record sheet and the package to you. If the parent and child have not completed the package, continue to phone the parent once a week. When the package is completed, they return the progress record sheet and the package to the school. Follow the procedure on the next page to place the student in a second package.

PROCEDURE FOR PLACEMENT IN A SECOND PACKAGE

****Administer the next test in the area (Reading or Math) in which the child was working.

Example: Use the test guide page that is appropriate for your grade level. If you are a 2nd grade teacher and the student just completed the Sound Symbol package, then administer the Blending Sounds test to see if the student can benefit from the Blending Sounds Parent Package.

READING

Test Names and Packages		Sound Symbol 1	Blending Sounds 2	Word Recognition 3
Criteria for Passing Tests	CORRECT	29	14	20
	TIME	60	75	15
		Pass →	Pass →	Pass
		Fail ⊣	Fail ⊣	Fail

2nd Grade

KEY

Pass → Administer the next test

Fail ⊣ Stop and place the student in this package or

If you are a 6th grade teacher and the student just completed the Math Combinations - Multiplication package, then administer the Math Combinations - Division test to see if the student can benefit from the Math Combinations - Division Parent Package.

READING

6th Grade

Test Names and Packages		Sound Symbol 1	Blending Sounds 2	Word Recognition 3	Vocabulary Building 4
Criteria for Passing Tests	CORRECT	28	20	20	92
	TIME	50	50	10	60 or less
		Pass → Fail ⊣	Pass → Fail ⊣	Pass → Fail ⊣	Pass Fail

KEY

Pass →	Administer the next test
Fail ⊣	Stop and place the student in this package

****Call this toll free number 800-662-5420 to order this second parent package.

APPENDIX F

Procedure for Parent Package

Home Teaching Program

Teacher's Copy

PROCEDURE FOR PARENT PACKAGE

HOME TEACHING PROGRAM

Teacher's Copy

Sept. 9 - 10	Orientation meeting with teachers
Sept. 17	Participation sheets turned into principal by teachers. Mail to: Attn: Mary Patten Instructional Technology Project Exceptional Child Center, UMC-68 Utah State University Logan, Utah 84322
	**** This participation form includes a section for the teacher to list the three lowest students in math and the three lowest students in reading in their classrooms. Note: They may be the same students.
Sept. 23 - 24	Procedural session for the teachers and principals.
Sept. 25	Testing by USU staff of the students listed by the teachers. To be completed by Oct. 3rd.
Oct. 3	Teacher's Handbook, Package Order Forms, and the Teacher's Monitoring Form to monitor the progress of the students using the packages will be delivered by USU staff to the principal.
Oct. 6	Teachers initiate testing of the 3 - 6 lowest students in math and reading. Tests and test forms are found in the Teacher's Handbook Kit.
Oct. 10	Testing by the teachers to be completed.
Oct. 6 - 10	As soon as the teacher completes the testing of a student, parent contact is made to see if the parent will use the package in the home with the student.
	* Follow the Procedure to initiate the parents to the packages on page 37 of the Teacher's Handbook.
Oct. 15	Package Request Forms are to be completed by the teachers, and will be picked up by USU staff on this date.
Oct. 20	Packages are delivered by USU staff to the principal to be delivered thereafter to the teachers.
Oct. 27	Teacher again makes parent contact, and delivers package to the parent via mail, personal contact, or through the student.

PROCEDURE FOR PARENT PACKAGE

HOME TEACHING PROGRAM

(continued)

Oct. 28	Telephone call by USU staff to each principal to receive feedback on status of package delivery to parents.
Nov. 10	School visit by USU staff with principal. If you have any questions, please refer them to your principal, or call us directly using this toll free line: (801)-662-5420.
	* Follow the Procedure to Monitor Student Progress on page 38 of the Teacher's Handbook.
Nov. 24	Telephone call to each principal to receive feedback.
	* To place the student in a second package, the teacher follows the procedure on pages 39-40 of the Teacher's Handbook: The teacher (1) tests the student, and (2) calls this toll free number to place the order: (801)-662-5420.
Dec. 8 - Mar. 8	Contact will be made with each principal via phone or school visit every second week to receive feedback during this time period. Teachers may call this toll free number to receive answers to any questions that they may have once the program is begun: (801)-662-5420.
Mar. 8	USU testers return to test students.
Mar. 17	Testing completed by USU testers.

Parent Package Home Teaching Program

UP-DATE PROCEDURE FORM

By Oct. 28	Package Request Forms are to be sent to: Mary Patten Instructional Technology Project Exceptional Child Center UMC-68 Utah State University Logan, Utah 84322
Oct. 30	Packages are delivered to principals and distributed to the teachers.
By Nov. 6	Teachers make parent contact and deliver package to the parents via mail, personal contact, and through the student.
Nov. 10	Telephone call by U.S.U. staff to each principal to receive feedback on status of package delivery to parents.
Nov. 21	School visit by U.S.U. staff with principal and any teachers wishing to meet with U.S.U. staff.
Dec. 5	Telephone call to each principal to receive feedback.

To place the student in a second package the teacher follows the procedure on pages 39-40 of the Teacher's Handbook.

She (1) tests the student and (2) calls this toll free number to place the order: 800-662-5420.

Dec. 17 - March 8	Contact will be made with each principal via phone or school visit every second week to receive feedback during this time period. Teachers may call this toll free number to receive answers to any questions that they may have once the program is begun: 800-662-5420.

March 8 U.S.U. testers return to test students.

March 17 Testing completed by U.S.U. testers.

PARENT TEACHING PACKAGE PROGRAM

Final Procedures

Participating schools: Corinne, Fielding, Garland, Honeyville, North Park

Feb. 20	Procedure meeting held with principals of above participating schools.
Feb.27	Final visit by U.S.U. staff to: (1) collect Consent forms and (2) all of the Teacher's Monitoring forms.
March 8-12	U.S.U. testers will return to retest the students who were originally tested.

Please call this toll free number if there are any questions:
800-662-5420

APPENDIX G

Analysis of Variance of Pretest Data

Analysis of Variance of Pretest Data

	Source of Variance	Degrees of Freedom	Mean Squares	F
Reading WRAT	Between	1	123978.8	1.246*
Scores	Within	7	99504.69	
Spelling WRAT	Between	1	34528.05	.845*
Scores	Within	7	40857.14	
Arithmetic WRAT	Between	1	18240.80	.869*
Scores	Within	7	20995.31	
Reading PTPT	Between	1	194833.8	1.002*
Accuracy Scores	Within	7	194417.7	
Reading PTPT	Between	1	194833.8	1.002*
Rate Scores	Within	7	194417.7	
Arithmetic PTPT	Between	1	1625260.0	1.098*
Scores	Within	7	1480220.0	
Total WRAT	Between	1	11076.36	.033*
Scores	Within	7	334536.5	
Total PTPT	Between	1	12400.2	.061*
Accuracy Scores	Within	7	201823.4	
Total PTPT	Between	1	92797.61	.070*
Rate Scores	Within	7	1333891.0	

*At 1 and 7 degrees of freedom, an F value of 5.99 is required for significance at the .05 level.

APPENDIX H

Summary of Parent Comments

On Parent Evaluation Form

Table 3

Summary of parent comments on the Parent Evaluation Form

	Low	1	2	3	4	5	High
Value of the package for the child				1	3	1	
Ease of using materials					4	1	
Clearness of directions					3	2	

	Yes	No
Did you require assistance in order to use the package?	1	4

Time required on the package	
How long did it take to complete the package?	20 days*
How many times a week did you work on the package with your child?	4 days*

What did you like best about the package?

"Working with my child."

"Helped me to get a little closer to him and I sure improved his sounds."

"Simplicity"

"The ease of use."

What did you like least about the package?

"Nothing"

"It takes too long to really get to the main objective."

"Sometimes it looked too long to go through all the combinations and the child got tired before we were through."

Suggestions for improvement

"I really can't improve it. It seemed to go well except my child didn't always want to do it."

"I feel it could be simplified by eliminating some of the repetition of the known combinations at the first."

*Average

APPENDIX I

Experimental and Control Group Grade Level Performance on the WRAT Subtests Compared to Grade Placement

Experimental and control group grade level performance on the WRAT subtests compared to grade placement

	Below grade level	%	At grade level	%	Above grade level	%
Reading						
Experimental group	57	61	3	3	33	36
Control group	37	65	2	4	18	32
Total	94	63	5	3	51	34
Arithmetic						
Experimental group	75	81	4	4	14	15
Control group	47	83	6	11	4	7
Total	122	81	10	6	18	12
Spelling						
Experimental group	87	94			6	6
Control group	47	83	1	2	9	16
Total	134	89	1	1	15	10

Experimental N = 93
Control N = 57
Total N = 150

APPENDIX J

Parent Teaching Package Program

Teacher's Monitoring Form

Parent Teaching Package Program

TEACHER'S MONITORING FORM

Teacher: ____________________ School: ______________________________ Grade: ______ Principal: __________

Please fill in the following information on all Parent Contacts. This form is to be returned to USU staff at the completion of this program.

Date	Parent Initiated/ Parent Initiated	Contact Made by Phone, Letter, Home Visit, School Visit, Chance Meeting	Length of Time Contact Lasted	Major Topic of Contact: Package Clarification, Motivation Problem, Teaching Problem, Charting Problem, New Package Requested, Program Praise, Program Criticism (specifically), Other (please specify)

APPENDIX K

Major Purposes for Recorded Teacher-Parent Contacts

Major purpose for recorded teacher-parent contacts as recorded on the Teacher's Monitoring Form.

Scheduled Checkup	Program Clarification For Parent	Parent Motivation	PTP Critique	New Package Request
36	37	35	10	10

Total recorded teacher-parent contacts 128

APPENDIX L

Parent-Teacher Package Orders (1974)

PARENT TEACHING PACKAGE ORDERS
(1974)

Packages	Number on First Order	Number on Second Order
Sound Symbol	20	
Sound Blending	20	1
Word Recognition	3	1
Vocabulary Building	1	
Number Skills	0	
Time Telling	0	
Addition	20	1
Subtraction	3	1
Carrying & Borrowing	3	5
Multiplication	1	
Division	1	

APPENDIX M

Raw Data

Pre and posttest experimental group data on the WRAT and PTPT by school

S*	Read WRAT		Spell WRAT		Arith WRAT		Tot WRAT		Read Acc PTPT		Read Rate PTPT		Arith PTPT		Tot Acc PTPT		Tot Rate PTPT	
	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr**	Po***
42E	34	49	24	33	22	26	80	108	28	55	45	89	5	7	33	62	50	96
43E	45	66	25	37	25	31	95	134	41	77	63	330	5	17	46	84	68	347
44E	57	57	34	39	32	35	123	131	148	54	276	405	21	27	169	81	297	432
45E	54	51	34	37	29	34	117	122	115	54	194	215	13	17	128	61	207	232
46E	59	65	33	41	00	30	92	136	55	70	253	195	11	23	66	93	264	218
47E	58	71	35	39	28	30	121	140	34	65	135	173	17	22	71	87	152	195
48E	64	79	33	42	25	29	122	150	51	74	137	149	8	25	59	99	149	174
49E	45	51	27	35	26	28	98	114	33	46	57	160	8	16	41	62	65	176
50E	58	60	28	39	24	30	110	129	49	63	157	204	7	19	56	82	164	223
51E	35	44	22	32	23	23	80	99	11	36	10	53	6	7	17	43	16	60
52E	36	40	21	29	22	22	79	91	29	21	19	26	4	4	33	25	23	30
53E	32	41	26	30	24	25	82	96	17	27	8	59	4	7	21	34	12	66
54E	58	66	35	45	28	28	121	139	57	78	114	267	16	25	73	83	130	292
55E	49	51	25	31	23	33	97	115	36	55	82	97	4	9	40	64	86	106
56E	39	59	25	29	23	25	87	106	30	56	29	120	4	14	34	70	33	134
57E	51	61	29	38	21	25	101	124	34	65	88	257	4	14	38	79	92	271
58E	36	54	26	29	22	25	84	108	22	46	33	142	3	14	25	60	36	156
59E	32	50	12	33	23	25	67	108	58	55	43	118	3	8	61	63	46	126
60E	39	54	26	34	24	27	86	115	29	68	32	133	7	14	36	82	39	147
61E	62	66	35	44	28	30	125	140	57	67	149	180	4	14	61	81	53	194
62E	52	59	31	38	25	30	108	127	43	57	103	183	8	21	51	78	111	204
63E	50	51	27	32	27	27	104	110	37	48	34	119	6	16	43	64	40	135
64E	59	62	35	41	26	31	120	134	65	59	168	216	12	19	77	78	170	235
65E	57	62	22	38	23	28	102	128	61	75	78	225	6	13	67	88	84	238
66E	47	60	26	32	25	26	98	118	33	52	67	129	8	18	41	70	75	147
67E	55	59	33	29	00	30	88	118	50	51	78	152	9	20	59	71	87	172
68E	56	61	32	40	26	29	114	130	37	52	147	271	15	23	52	75	162	294
69E	57	56	37	36	29	30	123	122	50	41	88	194	17	20	67	61	105	214
70E	61	68	37	41	28	30	126	139	52	45	99	91	14	15	66	60	113	106
71E	66	67	39	46	27	29	132	142	58	54	214	50	17	20	73	74	231	70
72E	69	69	39	41	27	27	135	137	152	55	364	463	9	4	161	59	373	467
73E	58	58	33	33	27	29	118	120	61	71	161	214	10	16	71	87	171	230
74E	63	62	35	38	24	29	122	129	44	59	160	269	16	22	60	81	176	291
75E	70	82	40	48	29	27	139	157	147	173	366	448	13	12	160	185	379	460
76E	68	68	37	40	29	34	134	142	164	177	328	505	12	15	176	192	340	520
77E	70	79	43	47	33	34	146	160	159	160	613	674	24	25	183	185	637	699
78E	62	67	35	36	28	30	125	133	170	157	349	425	21	23	191	180	370	448
79E	49	56	26	30	22	26	97	112	47	50	89	167	5	15	52	65	94	232
80E	34	46	23	29	21	23	78	98	25	55	46	280	4	11	29	66	50	291
81E	42	57	25	31	25	25	92	113	28	49	28	123	6	10	34	59	57	133
82E	36	54	15	33	23	25	74	112	33	50	122	159	4	13	37	63	126	172
83E	55	57	30	40	21	20	106	117	39	59	82	161	7	23	46	82	89	244

*Student **Pretest ***Posttest

Pre and posttest experimental group data on the WRAT and PTPT by school

	Read WRAT		Spell WRAT		Arith WRAT		Tot WRAT		Read Acc PTPT		Read Rate PTPT		Arith PTPT		Tot Acc PTPT		Tot Rate PTPT	
S*	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr**	Po***
84E	42	42	27	26	24	24	93	92	31	39	39	83	9	15	40	54	48	98
85E	42	58	26	35	23	25	91	118	39	46	48	80	5	18	44	64	53	98
86E	45	51	27	30	24	25	96	106	37	50	64	136	6	7	43	57	70	143
87E	41	47	26	30	25	25	92	102	37	53	52	84	6	15	43	68	58	99

*Student **Pretest ***Posttest

Pre and posttest experimental group data on the WRAT and PTPT by school

	Read WRAT		Spell WRAT		Arith WRAT		Tot WRAT		Read Acc PTPT		Read Rate PTPT		Arith PTPT		Tot Acc PTPT		Tot Rate PTPT	
S*	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr**	Po***
1E	36	39	19	30	20	24	75	93	22	25	39	40	4	5	26	30	43	45
2E	35	39	19	30	19	25	73	94	28	46	42	89	4	6	32	52	46	95
3E	34	35	24	26	15	26	73	87	13	17	14	27	5	5	18	22	19	32
4E	42	49	17	23	19	23	78	95	32	44	77	89	4	3	36	47	81	92
5E	32	39	19	24	21	22	72	85	14	21	22	47	4	9	28	30	26	56
6E	72	73	45	47	32	34	149	154	154	165	481	561	21	22	175	187	502	583
7E	63	66	36	43	33	34	132	143	145	149	389	415	21	21	166	164	410	436
8E	36	35	21	28	21	28	78	91	16	25	19	31	4	8	20	33	23	39
9E	41	42	28	30	23	19	92	91	38	51	50	123	5	8	43	59	55	131
10E	52	58	28	37	23	32	103	127	54	55	90	154	7	12	61	67	97	166
11E	42	50	19	30	22	24	83	104	38	43	67	129	7	16	45	59	74	145
12E	57	68	34	38	30	34	121	133	146	153	230	301	17	24	163	178	247	325
13E	49	51	31	30	30	32	110	113	107	130	113	212	14	18	121	148	127	230
14E	56	64	31	39	21	30	108	133	141	145	203	278	6	11	147	156	209	289
15E	62	66	35	40	30	34	127	140	161	175	352	503	14	10	175	185	366	513
16E	30	78	41	47	32	36	103	161	170	175	516	635	24	24	194	199	540	659
17E	71	61	34	35	27	31	132	127	139	160	309	448	10	13	149	173	319	461
18E	55	57	35	38	29	30	119	125	154	142	231	318	7	8	161	150	238	326
19E	54	56	25	35	22	23	101	114	37	50	40	101	5	6	42	56	45	107
20E	42	44	24	31	23	21	89	96	25	36	36	118	5	9	30	45	41	127
21E	56	60	28	36	28	28	112	124	39	61	124	320	14	19	53	80	138	339
22E	48	52	29	32	25	28	102	128	44	42	97	231	7	12	51	54	104	243
23E	57	62	34	39	26	29	117	130	61	68	138	255	7	12	68	80	145	267
24E	55	56	34	38	27	29	116	123	41	48	119	166	12	19	53	67	131	185
25E	24	35	14	21	17	19	55	75	18	40	26	91	4	6	22	46	30	97
26E	62	70	39	40	28	31	129	141	148	157	423	503	24	22	172	179	347	525
27E	53	55	36	37	29	28	118	120	131	143	169	304	17	18	148	161	186	322
28E	47	62	31	18	27	22	105	116	46	62	93	183	11	22	57	84	104	205
29E	55	56	31	34	30	31	116	126	54	68	158	324	15	28	69	96	173	352
30E	58	61	35	40	26	29	119	130	49	75	109	263	10	18	59	93	119	281
31E	57	51	23	30	27	27	107	108	54	77	221	76	9	7	63	84	222	83
32E	56	60	33	40	32	32	121	132	147	161	311	453	23	26	170	187	334	479
33E	45	48	22	29	27	26	94	103	30	51	88	181	10	16	40	67	98	197
34E	73	75	44	44	34	40	151	159	168	171	394	519	28	32	194	203	422	551
35E	65	67	39	41	36	40	140	148	157	170	402	431	21	25	178	195	294	456
36E	74	74	47	39	30	31	151	144	162	165	627	441	28	30	190	195	655	471
37E	59	65	39	39	33	34	131	138	147	154	374	427	27	30	174	184	371	457
38E	54	57	32	40	30	30	116	127	50	71	71	189	21	28	71	99	92	217
39E	23	29	12	21	17	25	52	75	18	26	22	28	4	6	22	32	26	34
40E	30	41	18	22	21	23	69	86	28	41	43	68	5	8	33	49	48	76
41E	38	48	22	31	24	27	84	106	28	55	25	115	5	12	33	67	30	127

*Student **Pretest ***Posttest

Pre and posttest control group data on the WRAT and PTPT by school.

S*	Read WRAT		Spell WRAT		Arith WRAT		Tot WRAT		Read Acc PTPT		Read Rate PTPT		Arith PTPT		Tot Acc PTPT		Tot Rate PTPT	
	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr	Po	Pr**	Po***
44C	38	37	20	27	22	23	80	87	28	27	49	72	6	4	34	31	55	76
45C	24	43	20	26	20	24	64	93	16	24	28	51	5	10	21	34	33	61
46C	34	43	18	25	21	23	73	91	25	35	41	62	6	10	31	35	47	72
47C	45	55	25	29	17	23	83	107	28	60	44	111	5	6	33	66	49	117
48C	42	53	28	37	26	28	96	118	48	54	56	120	6	14	54	68	62	134
49C	47	56	30	35	23	29	100	120	47	64	36	81	8	14	55	78	44	95
50C	54	62	35	39	25	30	114	131	55	74	118	161	6	12	61	86	124	173
51C	32	48	20	29	25	30	77	107	40	58	57	87	6	7	46	65	63	94
52C	48	55	26	33	27	30	101	118	51	72	114	182	6	12	57	84	120	194
53C	30	51	18	33	21	24	69	108	18	55	9	50	6	5	24	60	15	55
54C	26	29	20	21	20	20	66	70	17	17	11	7	5	3	22	20	16	10
55C	35	40	14	19	22	21	71	80	29	39	37	64	4	5	33	44	41	69

*Student **Pretest ***Posttest

Pre and posttest control group data on the WRAT and PTPT by school.

S*	Read WRAT Pr.	Read WRAT Po.	Spell WRAT Pr.	Spell WRAT Po	Arith WRAT Pr.	Arith WRAT Po.	Tot WRAT Pr.	Tot WRAT Po.	Read Acc PTPT Pr.	Read Acc PTPT Po.	Read Rate PTPT Pr.	Read Rate PTPT Po.	Arith PTPT Pr.	Arith PTPT Po.	Tot Acc PTPT Pr.	Tot Acc PTPT Po.	Tot Rate PTPT** Pr.	Tot Rate PTPT*** Po.
1C	39	45	21	27	30	30	90	102	114	115	142	190	15	16	278	131	157	206
2C	41	48	27	27	30	30	98	105	131	117	90	181	11	20	291	137	101	201
3C	45	54	28	30	29	29	102	113	130	141	109	219	11	18	314	159	120	237
4C	51	56	24	32	29	29	104	117	43	48	94	85	10	14	53	62	104	99
5C	44	48	22	32	27	29	93	109	33	43	46	96	5	9	38	52	51	105
6C	36	42	23	28	25	26	84	96	31	30	43	54	5	8	36	38	48	62
7C	42	52	19	29	22	26	83	107	41	55	52	73	5	8	46	63	57	81
8C	[illegible]	64	29	35	26	26	118	125	63	62	164	221	10	17	73	79	174	238
9C	42	49	23	27	24	26	89	102	28	45	21	76	6	11	34	56	27	87
10C	41	47	19	25	25	28	85	100	31	40	34	70	5	13	36	53	39	83
11C	32	41	19	28	19	24	70	93	11	30	11	45	4	6	15	36	15	51
12C	61	62	38	38	38	40	137	140	149	153	452	394	21	25	170	178	473	419
13C	56	62	33	34	36	41	125	137	138	143	405	279	31	28	169	171	436	307
14C	55	63	33	35	29	31	117	129	149	165	321	422	10	12	159	177	331	434
15C	68	70	45	41	32	39	145	150	149	160	356	370	26	28	179	188	382	398
16C	48	53	32	35	29	31	109	119	47	56	111	132	11	19	58	75	122	151
17C	53	58	40	37	28	35	121	130	59	70	184	232	27	29	86	99	211	261
18C	48	72	37	43	28	35	113	150	78	74	155	181	16	29	94	103	171	210
19C	59	61	39	43	26	32	124	136	59	64	173	234	18	24	77	88	191	258
20C	57	57	35	40	29	33	121	130	52	59	181	232	9	23	61	82	190	255
21C	53	58	30	39	26	26	109	123	49	59	150	156	11	14	60	73	161	170
22C	54	57	35	39	30	28	119	124	69	60	248	181	28	26	97	86	276	207
23C	59	57	36	40	21	24	116	121	63	71	177	237	1	5	64	76	178	242
24C	52	54	34	37	23	30	109	121	39	56	73	168	3	4	42	60	76	172
25C	53	57	37	45	27	30	117	132	60	72	81	155	4	14	64	86	85	169
26C	45	57	30	33	26	24	101	114	49	58	79	163	4	6	53	64	83	169
27C	53	62	36	31	25	28	114	127	56	65	142	227	2	14	58	79	144	241
28C	60	64	36	40	24	29	120	133	47	73	97	182	3	12	50	85	100	194
29G	45	56	30	36	26	28	101	120	52	57	96	126	8	15	60	72	104	141
30C	52	54	36	39	27	27	115	120	48	60	84	202	10	19	58	79	94	221
31C	51	56	33	34	22	28	106	118	51	74	66	191	4	13	55	87	70	278
32C	48	51	31	37	27	30	103	118	36	52	87	96	6	14	42	66	93	148
33C	39	46	20	23	21	27	80	96	13	16	23	25	5	13	18	29	28	38
34C	65	50	26	35	26	24	117	109	37	50	53	142	12	13	49	63	65	155
35C	55	66	34	31	27	29	116	107	132	141	190	421	10	12	142	153	200	433
36C	61	62	33	38	25	31	119	131	140	143	318	404	7	7	147	150	325	411
37C	39	43	30	34	22	22	91	99	85	118	138	225	5	8	90	126	143	233
38C	48	75	34	41	30	32	121	148	141	151	271	382	13	20	154	171	284	402
39C	65	75	41	43	35	35	141	153	146	168	330	495	20	28	166	196	350	523
40C	72	76	39	45	30	30	141	151	152	161	359	605	12	20	164	181	371	625
41C	54	55	31	38	26	30	111	123	114	132	309	502	10	111	124	[illegible]	319	513
42C	36	44	19	23	19	29	74	96	30	33	60	70	4	7	34	40	64	77
43C	41	42	19	20	20	31	80	93	14	31	36	27	6	19	20	50	42	46

*Student **Pretest ***Posttest

APPENDIX N

Severely Handicapped Project

Preliminary Report*

Project TELEPAC: A Prototype Educational Service Delivery Model for Severely Handicapped Children in Rural and Remote Areas

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* This summary was prepared for distribution to the local and state education agencies that participated in the development and evaluation of Project TELEPAC during the period July 1975 to June 1976. The support of these agencies is gratefully acknowledged. More information is available on project materials and procedures. Detailed information on the evaluation procedures and associated data is also available. Please contact:

Outreach and Development Division
Exceptional Child Center
Utah State University, UMC-68
Logan, Utah 84322

Phone: (801)-752-4100, Ext. 7753

Project TELEPAC: A Prototype Educational Service Delivery Model for Severely Handicapped Children in Rural and Remote Areas

The Education for All Handicapped Children Act of 1975 (P.L. 94-142) requires that all state education agencies, in order to remain eligible for federal funds for the education of handicapped children, must adopt a plan to assure that all handicapped children have available to them a free, appropriate public education designed to meet their unique needs (Ross, 1975).

The problems of delivering services to handicapped persons are intensified when such individuals are located in rural areas. A task force report indicated that few community resources are available in rural areas to provide specialized personnel and training to meet the needs of handicapped children (Northwest Regional Laboratory, 1974). In addition, problems of time and distance associated with rural areas make it difficult for the few existing centralized facilities to provide adequate and cost effective services.

Public Law 94-142 has stressed that priority be given to the more severely handicapped, the unserved, and the partly served. The need to fully serve the severely handicapped children in the more remote areas of Utah is well recognized by local and state education administrators. Public Law 94-142 will be providing additional fiscal resources to help these administrators to provide additional services. However, neither recognition of need, nor availability of funds is a guarantee that the need will be met. A replicable, validated, and cost efficient methodology must be available to educational administrators to ensure effective use of available funds.

In response to a request for proposals from the Bureau of Education for the Handicapped (RFP 74-5), the University Affiliated Exceptional Child Center at Logan, Utah, received funds for two years (July 1974 to June 1976) to develop and implement a prototype service delivery model for handicapped children and youth. The service delivery model was given the name Project TELEPAC.

How does TELEPAC work?

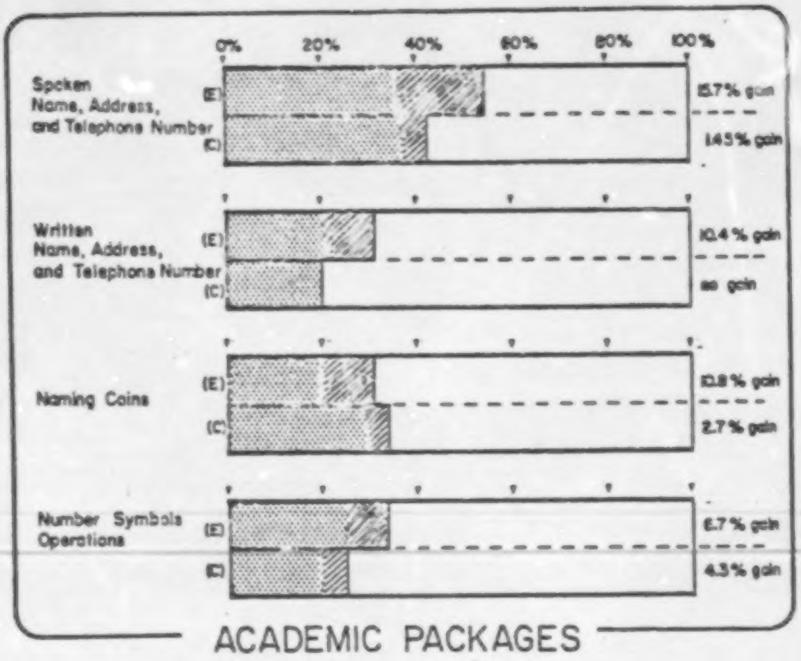
The typical child receiving TELEPAC services is referred by the local school district. In some cases, children are referred by health and social service personnel. If referrals are not from the school district, the local school district is contacted for their permission and recommendations. An evaluation of the child in the home is conducted either by a local program monitor (LPM), such as a local special educator, or by a TELEPAC resource teacher from the central TELEPAC office, located in the Exceptional Child Center in Logan. The basic purpose of this evaluation visit is to collect information concerning the child's needs, particularly the specific skills that need to be taught to the child. The parents, by the time of the visit, have received detailed information on TELEPAC via telephone conversations with central TELEPAC staff, LPM's, and through descriptive literature sent through the mail.

Following an evaluation, the family receives the basic TELEPAC services, which include:

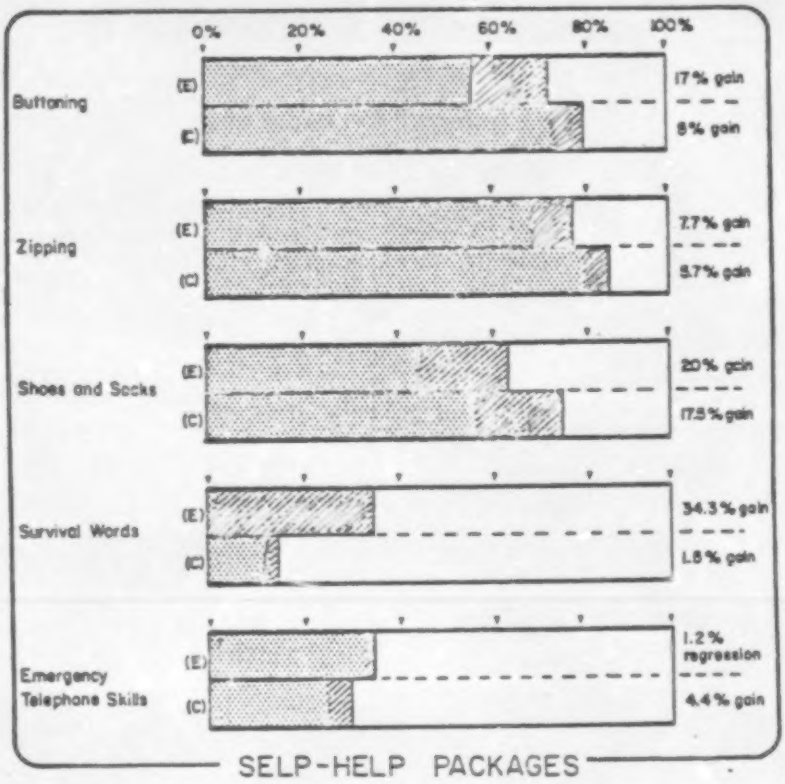
(1) Parent Involvement Packages. Twenty-two (22) Parent Involvement Packages were produced, field-tested, disseminated, and revised during the years 1974-76. They deal with academic, as well as self-help skills, and are written in a dialogue form to communicate specific practical teaching and assessment procedures to parents. Each package is self-contained, in that all instructions and supporting materials are included (see Table 1 for a listing of nine of the packages).

(2) The Parent Resource Library. TELEPAC includes a collection of books and pamphlets selected because of their practical information about caring for exceptional children at home. A catalog of library holdings indexed around common problems and questions is supplied to parents to facilitate ordering via the telephone, or through the mail.

Table I. - PUPIL PROGRESS



ACADEMIC PACKAGES



SELP-HELP PACKAGES

Average % gain Experimental Group (E) - 13.48

Average % gain Control Group (C) - 4.73

(3) Multi-Media Collection. The media collection includes films, slide/sound, and tape presentations concerning exceptional children. Multi-media materials are provided at no cost to local parent groups and agencies.

(4) A Toll-Free WATS Line Between Parents and the TELEPAC Staff. Whenever problems or questions arise, the WATS line provides direct communication between parents and resource teachers at the TELEPAC offices. It is also a convenient method for parents and parent groups to order materials from the Parent Resource Library and the Multi-Media Collection. Every parent working with a package is called approximately once a week by a TELEPAC resource teacher. Problems are discussed, and advice and encouragement given.

Children Served

To date, the project has focused on severely handicapped children between ages 3 and 21. Children with emotional, physical, and intellectual handicaps have been included. Some of the children were not receiving any educational services. Others received TELEPAC services in combination with attendance at a day training program.

It is generally recognized that an appropriate educational program for severely handicapped children should include the involvement and training of the parents, and this involvement and training should begin at an early age. To date, the basic thrust of TELEPAC has been the involvement and training of parents to be effective educational agents.

The major goal of the first year of the project (1974-75) was the development of prototype packages, the setting up of the Resource Library, and the exploration of ways to effectively use the telephone to communicate with parents and local educators. During the second year of the project (1975-76), this developmental work was continued, and at the same time a rigorous evaluation of the prototype materials and methods was conducted. This evaluation included a research design in which randomly selected control and experimental groups comprising 120 families were used to compare the gains made by handicapped children receiving TELEPAC services against a similar population not receiving TELEPAC services.

Parents were interviewed, and data concerned with their reactions to the overall project and the different parts of the service delivery model were collected.

The experimental treatment period was of 17 weeks duration. At the end of that time, services were provided to those families who had agreed to serve as controls, and services were also continued to those families who participated in the experimental treatment group. All pre- and post-testing was conducted by certified psychologists from outside the product development staff. The experimental families were divided into two groups: one receiving academic packages, and the other receiving self-care packages. A total of nine packages were selected in an effort to sample both curriculum breadth and levels. A curriculum based test was developed and test-retest reliability for the test was established (r = .90).

Results

Table 1 lists the results from the pre- and posttesting of the handicapped children in the control and experimental groups. It can be seen that the experimental population made greater gains than the control population. Difficulty was encountered in conducting tests of statistical significance at the individual package level because of the relatively low number of families using any one package. An analysis of covariance conducted on the test data from the control group and the experimental group using the academic packages yielded statistical significance at better than the .05 level in favor of the experimental group. A similar statistical test conducted on the self-help packages yielded significance at better than the .1 level. A chi square test conducted on the frequency of higher gains between control and experimental subtest scores yielded statistical significance at better than the .01 level in favor of the experimental group. The gains made by the experimental group must be recognized as being quite substantial when one realizes that a major educational characteristic of this population is their unresponsiveness to anything but the most precise educational methods.

A review of the data in Table 1 indicates that there was considerable variability among the different packages in terms of pupil gains. One of the major advantages of this service delivery model, with its emphasis on relatively discreet treatment units (e.g., specific parent involvement packages), is that those treatment units that are not effective can be identified and revised.

Table 2 lists the results from the parent reactions. Prior to interviewing the parents, a minimal acceptable criteria for an individual item was set as follows: at least 80% of the parents would rate the project and project components in the top three divisions of a five point scale. In all cases, at least 90% of the parents listed items in the top three divisions.

National Impact

The prototype project procedures and materials have been replicated by local education authorities in North Dakota, Virginia, and Idaho. In North Dakota, the program became operational in 24 school districts in the Devils Lake area in October, 1975. In Virginia, the South Eastern Virginia Training Center is integrating the TELEPAC program into their deinstitutionalization efforts. In St. Anthony, Idaho, local education authorities have replicated the project

Table 2. – PARENT REACTIONS REGARDING THE EFFECTIVENESS OF THE PROJECT

	low 1	2	3	4	high 5	PARENTS RESPONDING
Overall Interest	2.2*	0	13.0	28.3	56.5	46
Overall Effectiveness	2.2	0	10.6	29.7	57.4	47
Helpfulness of Telephone Calls	0	4.2	6.3	17.0	72.3	47
Helpfulness of Packages	2.1	0	10.6	29.7	57.4	47
Parent Resource Library**	0	0	0	36.3	63.6	11
SUMMARY low	1.5	1.0	9.5	26.7	61.1	high

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* Numbers (excluding those in the right hand column) are given as % of parents responding.

** 41% of parents indicated they did not use the Parent Resource Library. All parents had contact with the other major treatment components, the telephone services, and the parent packages.

for use in three school districts. The operational costs of the program were met with local funds with Project TELEPAC supplying the initial staff training.

During the eight month period from January to August, 1976, 4,263 parent involvement packages were distributed over 32 states. Additional packages also went to other countries, such as Canada, Australia, Japan, Hungary, and the Philippines. The cost of reproduction of 2,000 packages sent to states outside Utah was met by local education authorities.

The dissemination data indicate that a need exists and that, once the development costs are met, the maintenance costs are within the reach of many school districts in rural areas. Unfortunately, the development completed to date, while sufficient to evaluate the viability of the approach, represents approximately 10% of the development effort that would be needed to supply schools with a reasonably complete and practical set of materials and associated instructional and administrative procedures.

A major advantage of programming precise and practical instructional materials so that parents can use them effectively is the materials' potential for use by other paraprofessionals and professionals involved in the education of severely handicapped children. Many special education teachers are finding themselves unprepared for instructing the severely handicapped, and the TELEPAC materials provide a means of individual inservice training and a source of practical and effective instructional materials.

Conclusions

(1) TELEPAC procedures are capable of effectively involving parents in assisting in the education of their severely handicapped children.

(2) Children receiving TELEPAC services demonstrated statistically significant test score gains over similar children not receiving TELEPAC services.

(3) All evidence indicates that treatment procedures were cost effective, in that positive changes did occur, and the maintenance costs of the program were low because of the use of parents as a major treatment resource.

(4) The TELEPAC procedures served both a complimentary role when combined with existing day training programs, and a more independent role where the severely handicapped child was homebound and not able to attend a day program.

(5) Parent response was most supportive, with the telephone service being one of the more highly regarded components of the service delivery model.

Alan M. Hofmeister,
Director, Project TELEPAC
September, 1976

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